NEW REMEDIES.

AN ILLUSTRATED MONTHLY TRADE JOURNAL OF

MATERIA MEDICA, PHARMACY, AND THERAPEUTICS.

VOL. IX., NO. 4. WHOLE NO. 70.

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PUBLISHED BY

WILLIAM WOOD & CO., No. 27 Great Jones St., N. Y.

APRIL, 1880.

SUBSCRIPTION PRICE, per year, - - - - - $2.00
SINGLE COPIES, - - - - - - - - - .20

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NEW REMEDIES is issued about the middle of each month, dated for the month ahead. Changes of advertisements should reach us before the 5th. New advertisements can occasionally be inserted after the 12th.

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EDITORIAL.

IT appears that San Francisco pharmacists have at last attempted to put an end, by legislative enactment, to the custom of payment by an apothecary to physicians of a percentage on prescriptions, and have thereby awakened the opposition of a few of their number, and of the physicians who join with these persons in dividing the exorbitant profits which must necessarily be paid by the purchasers of such prescriptions. In order that such a business may be carried on successfully, it is, of course, requisite that prescriptions must be written in signs or language which are intelligible only to those concerned in such nefarious business; and the bill which has been introduced in the legislature, together with the amendments proposed by the California Pharmaceutical Society, make it a misdemeanor punishable by a fine of not less than $50, nor more than $500, for any agreement between an apothecary and physician, to give or receive any money, property, commission, or reward, in consideration of an order to procure medicine only of such apothecary. A fine of $50 is also imposed upon any physician who makes use of arbitrary signs, names, or numbers, or who writes his prescriptions in such manner as not to be intelligible to any competent pharmacist. A like fine of $50 is imposed upon any pharmacist who refuses to give to any competent pharmacist, upon application, the name of any preparation so designated.

It seems almost incredible that medical journals which have heretofore borne the reputation for respectability of the *Western Lancet*, and the *Pacific Medical and Surgical Journal*, should oppose a measure of this sort; but that this has been done is quite evident from the tone of a "Reply," by Prof. Emlen Painter, of the California College of Pharmacy, which has lately come to hand.

Professor Painter's reputation for straightforward dealing is too good to permit us to doubt the truth of his statements; but it is certainly astonishing to be told that

> "At this very moment, in summing up, and without any references, I can call to mind as many as twenty physicians who are in the habit of writing cipher prescriptions, several of whom are classed among the leading physicians of the city, and who write, by far, the largest number of prescriptions of any practising here. If we may judge from such prescriptions as fall into the hands of druggists who are not in collusion with such physicians, at least ninety per cent of them are written in that unprofessional manner. Some of these doctors, some of them occupying positions of honor and trust, some occupying professorships in our medical schools—especially in the medical department of the University of California—are, I am grieved to say, included in that category; and their influence is felt to such an extent that not a few of the young graduates seem to think that being paid a percentage on their prescriptions is a legitimate business transaction."

This is certainly a subject which should engage the attention of the American Medical Association, since it is unlikely that a practice of this sort should have reached its present status, and found such eminent adherents, without there being included among them some who are members of that august body. The appointment of a special committee to investigate the ethical practices of some of its California members might exercise a wholesome influence in localities where this custom is liable to become engrafted.

An impression is current among physicians and pharmacists that our Philadelphia medical brethren who manifest an interest in the subject of pharmacopœial revision are rather more concerned in the matter of controlling the publication of the work than in furthering the interests of those who desire chiefly that the pharmacopœias hall undergo adequate periodical revision. The lack of interest which the medical profession, as a body, has shown of late years in the subject has contributed largely to the existence of the present state of the work, and it is doubtful whether pharmacists will continue, for long, to allow their interests in so important a matter to be made subservient to the wishes of so small a portion of the medical profession. It is, therefore, by no means unlikely that, should their opinions and desire, with respect to what the pharmacopœia should be, miscarry in the coming convention, another body will be called upon to assume the control of this important standard.

So far as the wishes of most physicians are known, we believe that they would be quite willing to leave the whole matter in the hands of the American Pharmaceutical Association, since this more nearly represents all sections of the country than does the convention for revision, as at present constituted.

There is certainly an advantage which would be derived from such a change in authority, viz.: the opportunities afforded by the annual meetings, in different sections of the country, for thoroughly discussing the propriety of additions and alterations, and the consequent diminution of the amount of labor required at each decennial revision of the work. Another advantage would be the facility with which provision could be made for new formulas and standards of more ephemeral character, and their annual publication in the volume of proceedings.

Correction.—In the paper on the "Manipulation of Syrup of Iodide of Iron, U. S. Ph.," by Mr. Edw. W. Runyon, on page 66 of our last number, the formula in the second paragraph should read: "and about 15¾ pints of Simple Syrup," instead of 18¾ pints. The *finished product* is 18¾ pints, 300 fluid ounces, equal to about 25 lbs. (or 15 times the pharmacopœial quantity).

MATERIA MEDICA, PHARMACY, AND THERAPEUTICS.

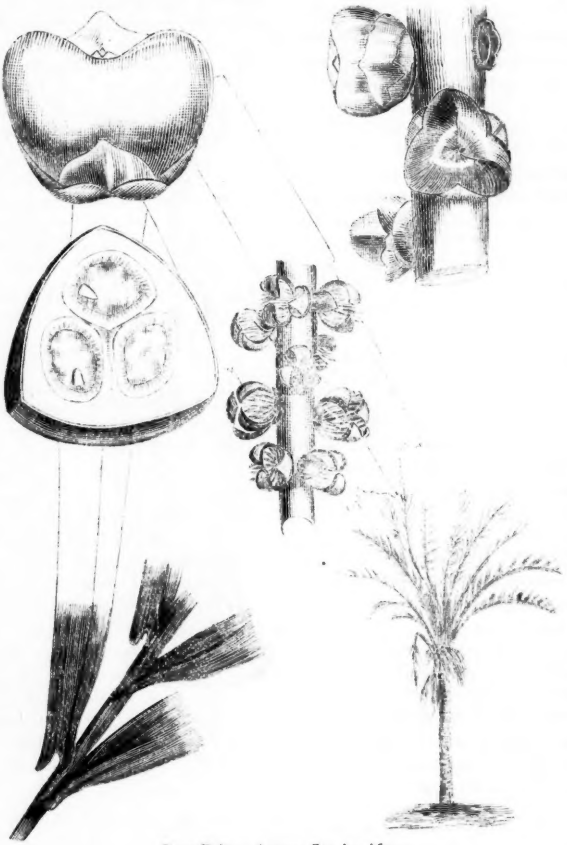
Apparatus for determining the Quantity of Water in Milk, etc.

The apparatus described below, which is patented (in Germany) by Dr. J. Petri and Dr. R. Müncke, depends on the same principle as Geissler's lactometer, namely, the distillation of a known quantity of milk in rarefied air, and measuring (or weighing) the distillate. It consists of a closed metallic reservoir for water, *A*, which is connected by means of the rubber-tube *a g* with the flask *B*, closed by a triply perforated cork. The outlet *d* carries the vapors of water into the condenser *D*, in which cold water circulates around the condensing tube proper. The middle perforation of the cork holds the burette *C*, from which a measured amount of milk is allowed to run into the flask at the proper time. When making a water-determination, the water in the reservoir is heated by means of the lamp, and the steam is allowed to pass through the tube *a g* (the pinch-cock being open) into the flask, and from there through *d* into the condensing tube until all the air has escaped, and nothing but pure steam issues from the end of the condenser. The latter is then closed by means of the pinch-cock, the tube *a g* is disconnected from the reservoir and also closed by the pinch-cock. By means of a proper supply of water to the condenser, the remaining steam in the flask and tube is condensed and collects in the lower part of the condensing tube. As soon as the level of the condensed liquid remains stationary, its height is noted, and immediately afterwards a measured quantity of milk allowed to run into the flask from the burette. The water of the milk will under these circumstances rapidly distill over, and when nothing more passes, its height may be read off. Deducting the amount of liquid previously obtained, the remainder will be the quantity, by measure, of water in the milk. If the milk was previously weighed, the increase of weight in the condensing tube will indicate the water gravimetrically.—From *Industrie-Blätter*.

The Manufacture of Sago and its Sources.*

SAGO is a kind of starch which is obtained from the interior of the stems of species *Metroxylon* (*Sagus*) and of allied palms. Also from species of *Cycas*, as *C. revoluta* and *C. circinalis*. The sago of commerce is, however, now most abundantly obtained from *Metroxylon Sagu*, but also to some extent from *Metroxylon Rumphii* and from *Arenga* or (*Saguerus*) *saccharifera*. The kind of sago which is used in Japan and China is derived from one or more species of *Cycas;* and although *C. circinalis* and other of its species was formerly recognized as one of the sources of sago in the Edinburgh and Dublin Pharmacopœias, a microscopic examination of the starch grains of these plants will prove that they differ both in size and shape from those of commercial sago, which, as just stated, are derived from species of palms.

Arenga saccharifera Labill., which forms the subject of our illustration, is a fine palm, growing in the Sunda, Molucca, and Philippine Archipelago, whence it has spread throughout tropical Asia. It is cultivated in Malacca, Siam, and Cochin-China. It prefers damp situations, and in Java is found in the hills up to 1,800 feet. It produces about six of its immense leaves annually, and is in flower nearly all the year through. The female flowers are sometimes found on the same spadices as the male, and abortive male flowers are frequently produced with the female ones; ripe fruits are only formed on the upper spadices; they are sometimes two-celled, from abortion; the pulp is very acrid.



Sago-Palm—*Arenga Saccharifera.*

This palm, as its specific name implies, is one of the principal sources of palm sugar. Thus it supplies abundance of this sugar in the Moluccas and Philippines. Palm sugar is usually obtained by boiling the juice which flows out from this and some other palms, upon wounding their spathes and the surrounding parts. Palm sugar is known in India under the name of *jaggery*.* The saccharine juice (*toddy*) † of this palm also yields, when fermented, an intoxicating liquid. This is termed *nera* in Sumatra, and in Batavia a kind of spirit (*arrack*) is distilled from it.

When the trees are exhausted of their saccharine juice, sago of good quality is obtained from their stems. It is said that a single tree will yield from 150 to 200 pounds of this kind of starch. The palm is the source of a good deal of our commercial sago.

The black, stiff, strong, horse-hair-like fibre, called *ejow* or *gommuti* (*fibre*) by the Malays, which is used for cordage and other purposes, is also obtained from the leaf-stalks of this palm; and several other products of minor importance are also yielded by it.

Preparation of Sago.—The mode in which sago is obtained in the Moluccas is as

* After *Bentley and Trimen's Medicinal Plants*, from which work we have also borrowed the illustration.

* *Jaggery* is a corrupted dialectic derivative from the Sanskrit *çarkara*, which in the old vedic language denoted "gravel," or "coarse sand," and was in later times applied to *sugar*, which latter was, of course, obtained in an impure granular condition. From *çarkara* is derived the Latin *saccharum*, Greek σάκχαρον, and the modern names *sugar*, *Zucker*, etc.—ED. N. R.

† *Toddy* is derived proximately from *tâdî*, which is an old prâkritic (vernacular) form for Sanskrit *tâlî*. *Tâlî*, or more commonly, *tâla*, denotes the wine-palm: *Borassus flabelliformis* L., which is the principal source of palm-wine in India. The Sanskrit term *tâla*, denoting the wine-palm, occurs already in the old epic poetry, and played an important part in the domestic and public life of the old Hindus.—Ed. N. R.

follows: At that period of its growth when the medullary matter is fully developed, which is before the appearance of the fruit, the tree is felled, and the trunk then cut into billets six or seven feet long, each of which is again split into two parts in order to facilitate the removal of the medullary matter. The latter is then extracted and reduced to a coarse powder like sawdust, and then, in order to separate the starch or fecula from the cellular and fibrous matters with which it is mixed, the coarse powder is mixed with water in a kind of trough, having a sieve at its end. The water containing the starch in suspension then passes through the sieve into a suitable vessel, leaving the matters with which it was mixed on the surface of the sieve. It is then allowed to stand until the insoluble fecula is deposited; after which the water is poured off, and the starch which remains is again washed two or more times, and subsequently dried, when it constitutes the powder which is called sago meal. As seen in commerce, however, sago is commonly found in grains of various sizes, and therefore termed *granulated sago.* The mode of preparing this latter kind appears to vary somewhat in different localities, but it consists essentially in mixing the meal with water into a paste, and rubbing it through suitable sieves to cause its granulation. It is afterwards dried either in the open air, or more commonly in ovens at a temperature of about 140°, by which the grains become more or less horny and translucent. Forrest says that in New Guinea granulated sago is made by mixing the sago meal with water and pressing the paste through a sieve into a very shallow iron pot held over a fire, by which it is made to assume a globular form; so that, he adds, our grained sago is half baked, and will keep long.

This, also, according to Blume, is the process which is followed by the Chinese at Singapore; the meal being first repeatedly worked and dried. Blume adds that during the heating process the grains are constantly turned, and that, though quite white at the commencement, they become hard and somewhat pellucid during the process.

Characters, Varieties, Commerce and Composition of Sago.—Sago occurs in two states, as already noticed, that is, in the form of powder, when it is termed sago meal, and in grains, and then called granulated sago. It is imported essentially from Singapore and Sumatra. The average importation into England exceeds 4,000 tons annually.

1. *Sago Meal.*—This is rarely seen in commerce. It exists in the form of a fine powder, which is whitish, buff-colored, or reddish. It has a faint, somewhat musty odor. Under the microscope it is seen to consist of irregularly oval, or more or less ovoid, usually isolated granules; these often appear truncated, owing to their mutual pressure, and thus become more or less mullar-shaped, or have a dihedral extremity. The granules are frequently more or less broken, and have an irregular or tuberculated surface. The hilum is circular when perfect, but it is frequently cracked, either in the form of a single slit, or of a cross, or in a stellate manner. The surface of the granules is marked by concentric rings, but these are much less distinct than those of potato starch. The granules show a black cross, the centre of which is the hilum, when examined by the polarizing microscope.

2. *Granulated Sago.*—This occurs in two forms, which are distinguished as common brown or Borneo sago, and Pearl sago. The latter kind is that now commonly in use. Common or brown sago occurs in irregularly rounded grains varying in size from a white mustard seed to that of a small pea; the grains are whitish on one side and greenish-brown on the other. Under the microscope they are seen to consist of granules, like those of sago meal, but more broken and less regular in their shape. The grains are frequently mixed with more or less of a dirty yellowish-brown powder. Pearl sago is prepared by the Chinese at Malacca and Singapore. It is in small grains, which are usually about the size of a pin's head. They have no odor, and but little taste; they vary in color, being whitish, brownish-yellow, or sometimes pinkish. The color of the grains is commonly not uniform over the whole surface, but they are whitish on one side and colored on the other. The grains are usually isolated, but in some cases two or three may be found adhering together. The grains may be rendered perfectly white by a solution of chlorinated lime. Under the microscope, pearl sago is found to consist of granules of the same characters as those of sago meal, but they are all more or less ruptured, and present but indistinct traces of rings. Sago has doubtless the same composition as other starches, but it has not been analyzed; at least it possesses the same chemical characters as starch. Sago meal is insoluble in cold water, but by boiling in water it ultimately almost entirely dissolves, and forms a clear gelatinous solution; which, when cold, assumes a blue color on the addition of a solution of iodine. Pearl sago is frequently partially soluble in cold water, which is doubtless owing to the heat used in its preparation, having more or less broken up the granules of which it is composed.

Adulteration.—A factitious sago is sometimes prepared, both in this country and abroad, from potato starch. It occurs both white and colored. The microscope will readily distinguish true from spurious sago, by the difference in the size, form, and other characters of the constituent granules.

Sago is nutritious, easily digestible, and free from all irritating properties, hence it is frequently used as a food in febrile cases, and in convalescence from acute diseases. For this purpose it should be boiled in milk or water, and the solu-

tion, after being strained, may be sweetened with sugar, and flavored with nutmeg or other spice, or with wine when its use is not contra-indicated.

Sago is also largely used as a dietetical substance in this country and elsewhere; it is commonly served up in form of a pudding.

In the countries where it is found, sago is made into cakes which are baked and used as bread. It has been stated that two pounds and a half of this bread are sufficient to serve for a day's sustenance to a healthy full-grown man, and as a tree will yield, on an average, about seven hundred pounds of sago meal, it has been calculated that a single acre of land planted with three hundred trees—one-seventh to be cut down every year—will maintain fourteen men.

On the Use of Quinetum in British India.

THE high value of the alkaloidal compound *Quinetum*, under which name are understood the total alkaloids precipitated from East India cinchona bark, and used in its crude state—may be recognized from the last official report of Dr. King, the Director of the Cinchona Plantations in Bengal. According to King, the increase in consumption of this article, which is manufactured by the quinologist, Mr. Wood, has been as follows during the past 5 years: 1874–75, 48 lbs. 10 oz.; 1875–76, 1,940 lbs. 6 oz.; 1876–77, 3,750 lbs. 12 oz.; 1877–78, 5,162 lbs.; 1878–79, 7,007 lbs. The demand has risen so much during the past year that it could not be fully supplied. In consequence of this, the factory at Mungpo had to be considerably increased. The cost of the product, including the packing of the bark, amounted to 10 rupees 14 annas and 7 pice (or $50.45) per pound, which is 1 rupee less than in the preceding year. The quantity of quinetum on hand on April 1st, 1878, amounted to 3,404 lbs. 4 oz. In addition to this, there were manufactured during the succeeding year 7,007 lbs. This total quantity of 10,411 lbs. and 4 oz. was distributed as follows: The medical depot at Calcutta received 4,000 lbs.; that at Bombay, 1,200 lbs.; that at Madras, 300 lbs.; at the Straits Settlement, 30 lbs.; 2,404¾ lbs. were sold to natives; and 23 1/16 lbs. were lost, or given away as samples, or consumed in analyses; leaving on hand on March 31st, 1879, 2,455 lbs. and 13 oz.

The financial results of this year were highly satisfactory, since the revenue from the sale of the article amounted to 132,519 rup. 1 ann. (=$61,223), of which nearly one-third was sold to the public. The expenses amounted to 78,983 rupees (=$36,105), of which a little less than ⅔ is to be charged to the cost of the bark, and about ⅓ to the expense of manufacture. Deducting loss of stock, in consequence of the increased sales, the net gain reckons up to 27,091 rup. (=$19,594). The total capital invested in the enterprise, including a rental of 4% for cinchona plantations and the factory, amounts to about 10 lacs of rupees (=$462,000), so that the revenues of this year, after deducting all expenses, represent an interest of nearly 4½% on the investment. For the next financial year, 1879–80, the Lieutenant Governor has sanctioned the consumption of bark at the rate of 350,000 pounds.

Since October, 1872, until April, 1879, the total quantity of "mixed alkaloids" manufactured amounts to more than 8,000 kilograms.—From *Pharm. Zeitung*.

On the Difficulty of freeing Sulphuric Acid from Arsenic, and on some Properties of Arsenious Acid.

FROM an extended paper by Prof. Selmi, of Bologna, read at a meeting of the Accademia dei Lincei, the *Pharm. Zeit.* makes the following abstract:

1. Neither the purest sulphuric acid of commerce, nor that which is purified in the laboratory with sulphydric acid or sulphides, or oxidizing agents, can be obtained absolutely free from arsenic, although it may yield no reaction whatever in Marsh's apparatus.

2. In order to make absolutely certain that a certain lot of sulphuric acid is free from arsenic, it is necessary to test not less than 1 kilogram.

3. The test is made by distilling 1 kilo. of the acid, previously mixed with 300 grams of water, with chloride of lead, and examining the first portion of the distillate with sulphydric acid.

4. Chloride of lead may be used to advantage as the final purifying agent of sulphuric acid, the larger portion of arsenic having previously been separated by sulphydric acid.

5. Arsenic acid, when present in sulphuric acid, is not as firmly combined with the latter as is usually supposed. On distillation, about 1/12 of the arsenic acid passes over with the sulphuric acid in which it was dissolved.

6. To prove the presence of arsenious acid in a liquid which contains considerable quantities of sulphurous acid, the best reagent is the simultaneous introduction of vapor of phosphorus, air, and sulphydric acid. These combined agents precipitate the arsenious acid as sulphide of arsenic, even if larger quantities of sulphurous acid are present in the liquid. The last-named acid does not suffer decomposition.

7. Methylic and amylic alcohols, ether, and chloroform dissolve small quantities of the porcelain-like arsenious anhydride; oil of turpentine, benzin, and light petroleum ethers scarcely in traces. But glassy arsenious anhydride is dissolved by oil of turpentine in small quantities.

8. Ether, shaken with water containing arsenious acid in solution, abstracts the latter in the proportion of 1 milligram for every 15 c.c. If the solution was acidified with hydrochloric acid, it dissolves less; if acidified with sulphuric or tartaric acid, none at all.

The publication of Bentley and Trimen's "Medicinal Plants" is now completed. It comprises in all 42 parts, at $2 each, and over 300 plates.

Peptones as Food.

BY WILLIAM ROBERTS, M.D.

(*Continued from page 72.*)

PEPTONIZED MILK.—For some time past, I have been trying to attack the problem in another way. Last year I found that extract of pancreas digested milk with great ease and with little apparent disturbance of its physical character. Milk, as you know, contains all the elements of a perfect food adjusted in their due proportion for the nutrition of the body. Two out of its three chief ingredients—namely, the sugar and the fat—are already in the most favorable condition for absorption, and require little, if any, further assistance from the digestive ferments. It is, therefore, obvious that, if we could change the casein of milk into peptone without materially altering the taste and appearance of the milk, such a result would go very near completely solving the problem of supplying a predigested food for the use of invalids. This consummation is still some way off; but the results already reached are, I think, susceptible of important dietetic application. You cannot, so far as I now know, *completely* peptonize milk without rendering it unfit for human food; but you can *fractionally* peptonize milk, that is, convert three-fourths or four-fifths of its casein into peptone without materially diminishing its agreeable qualities as an article of food. In order to understand this matter fully, I must ask you to follow me while I describe what occurs when milk is subjected to the process of pancreatic digestion. I cannot do this better than by describing an experiment performed this forenoon, of which the results are placed in these phials before me. A pint of milk was diluted with half a pint of water, and after being heated to 120° F., was placed in a glass beaker with a tablespoonful of liquor pancreaticus and twenty grains of bicarbonate of soda. The beaker was then placed in a warm chamber, and maintained at a temperature of 110° F. until the close of the experiment. In about ten minutes, the milk was observed to thicken and become softly curdled. This phase soon passed away; the soft curds became dissolved; and in about half an hour from the commencement, the milk had recovered its diffluent condition. Meanwhile, the milk had lost something of its glossy white appearance, and become a shade yellower. Very gradually, further changes took place; the milk got to look a little thinner and grayer; its flavor also progressively deteriorated, and at length became somewhat bitter and unpleasant. The process was completed, that is, all the casein was converted into peptone, in two hours and a half from the commencement of the experiment. The milk no longer precipitated with acetic acid nor even with nitric acid. These numbered bottles contain samples withdrawn from the beaker at different periods and immediately boiled to prevent further changes. No. 1 represents the original mixture; No. 2 was removed in half-an-hour; No. 3 in an hour; No. 4 in two hours; No. 5 at the end of the experiment. Nos. 1, 2, and 3 are scarcely distinguishable from each other, either in appearance or in taste; and yet I know, from other and parallel experiments, that in No. 3 at least three-fourths of the casein is changed into peptone. Nos. 4 and 5 are perceptibly altered in taste, but even these have nearly preserved their original milky appearance. The slight yellowing and graying just spoken of are not appreciable, except by comparison with a specimen of unaltered milk placed by the side of the digested samples. The series of changes do not cease with the completion of the peptonizing process. The milk continues to deteriorate; and, in the course of some hours, it becomes more gray and watery-looking, and its taste becomes decidedly bitter and nauseous. It is important to know that you can arrest this series of changes at any point or at any moment by simply heating the milk to the boiling point. This at once destroys the activity of the ferments and puts an absolute check to all changes. It is also important to know that the greater part of the casein is converted into peptone soon after the commencement of the process, and that it takes a disproportionately long time to convert the remaining portion. Thus I found, when the experiment was so arranged that the milk was wholly peptonized in two hours and a half, that two-thirds of the casein was converted in the first half-hour and three-fourths in the first hour; and that it took an hour and a half longer to convert the remaining one-fourth. In this respect, the peptonizing process followed the rule observed in many other ferment-actions; namely, that the gradually accumulating product of the ferment-action hampers the operation.

In preparing peptonized milk for invalids, it is absolutely essential to immediately boil the milk when the process has reached the desired point, in order to stop ulterior changes. It is, moreover, obvious that it is not necessary for a therapeutical purpose that the milk shall be completely peptonized. A milk in which three-fourths of the casein is digested, and which is so little altered in flavor that it can be taken like ordinary milk, would probably fulfil all the service capable of being rendered by fully peptonized milk. Such a result as this is, I believe, now within our reach. The rate at which milk can be peptonized by pancreatic extract—in other words, the time within which a given quantity of milk can be digested by this means—varies almost indefinitely according to the attendant circumstances. Four conditions have especially to be taken into account, namely, temperature, the degree of alkalescence, the degree of dilution, and, above all, the quantity of the ferment. The higher the temperature, up to about 140° F., the quicker the digestion. The process

is arrested and the ferment destroyed at 157°–158° F. On the other hand, a slow action takes place even in the cold. The process is hastened by increasing the alkali up to about four grains of the bicarbonate to each ounce of milk. An alkalescence of one grain to the ounce of milk secures a sufficiently rapid action, and gives no appreciable taste to the product. A slower action takes place even in milk to which no alkali has been added. Dilution with water hastens the process greatly; it also facilitates it in another way. If the milk be diluted with one-third or one-half its bulk of water, the curdling phase is either altogether absent, or is usually so slight as not to amount to more than a transient thickening of the milk. In practice, I have, therefore, always found it advisable to dilute the milk beforehand, either with simple water or with a farinaceous gruel, so as to abate the tendency to curdling. This tendency varies in a way I cannot always explain. Pronounced curdling delays the peptonizing process very considerably, and thereby renders the product less acceptable to invalids.

The quantity of ferment that should be used is always a matter of uncertainty. It is impossible to obtain pancreatic extracts of constant strength; and not only do several specimens of pancreatic extract differ from each other, but even the same specimen varies in activity according to its age. Freshly made extracts are nearly inert, and they go on increasing in activity for many months after they are made. But supposing you to be operating with the same sample, the proportion added to the milk greatly influences the rate of digestion. I have generally used a dessert-spoonful of the extract to the half-pint of milk. If the preparation be fairly active, this proportion yields a sufficiently quick result; and, in the case of the liquor pancreaticus, communicates no flavor. The glycerin extract perceptibly sweetens the milk, and is to some people disagreeable.

After a good many trials, I now advise the following procedure for preparing peptonized milk for the sick-room. A pint of milk is first diluted with half its bulk of water and heated to about 150° F. It is then put into a covered jug with a tablespoonful of liquor pancreaticus and twenty grains of bicarbonate of soda (in solution). The jug is then placed in a warm place under a "cosey" for one hour. At the end of this time, the milk is at once raised to the boiling point. It can then be used like any other milk, and undergoes no further change until decomposition sets in. It is well, however, to know that peptonized milk does not keep well, and that it should be used within twelve hours of the time of preparation. The use of the thermometer may be obviated by directing the milk to be diluted with an equal bulk of *boiling* water.

Another formula, which supplies a more nutritious product, and does not require the thermometer, is the following: To half a pint of cold milk, in a covered jug, add half a pint of well boiled and *boiling* gruel. This gives a temperature of 120° to 130° F. To this add a dessert-spoonful of the liquor pancreaticus and a dessert-spoonful of a saturated solution of bicarbonate of soda (which contains about ten grains). Put under a "cosey," as before, and heat to boiling at the expiration of an hour. In this case, the trypsin of the pancreatic extract acts on the casein of the milk and (I presume) on the gluten contained in the gruel. The diastase of the extract also acts on the starch of the gruel, and converts it into sugar. This method gives us a preparation similar in design to Liebig's food for infants, but in which the proteids, as well as the amylacea, are subjected to digestion. The making of it is exceedingly easy, and it would seem well adapted both for the nursery and for the sick-room. The gruel employed should be made thin; it may be prepared from wheat-flour, or from oatmeal, or from any other farina.

I have now used these fractionally digested articles of food in a considerable number of cases, and in many with gratifying results. If the process be properly performed, if it be cut short by boiling at the right moment—that is, after the curdling phase has passed away, and before ulterior changes have rendered the milk unpleasant to the palate—the resulting products are liked as well as if they were simple milk-and-water or simple milk-gruel. But if the process be carried too far—or if, on the other hand, the milk be still partially curdled when put before the patient—the product is not liked, and is even apt to cause nausea.

When further experience shall have taught us how to produce a pancreatic extract of constant strength, there will be no difficulty in exactly fixing the proper moment for stopping the ferment-action; meanwhile, the best rule is to allow the process to go on for an hour, and not longer. I have several times seen fractionally digested milk remain on the stomach when nothing else would remain. I have also seen this food tolerated without pain when all other food caused pain.

In the present state of this inquiry, it would not be prudent to say more on the therapeutical uses of peptonized milk and milk-gruel. Any practitioner can easily prepare these articles for himself, and make trial of them among his patients.—*Brit. Med. Jour.*

Oberdoerffer's Pharmaceutical Press.

In a late number of the *Pharmaceutische Zeitung*, Dr. B. Hirsch, of Frankfort-on-the-Main, one of the foremost authorities on practical pharmacy in Europe, gives a description of a pharmaceutical press which has been construct-

ed for him by Mr. Emil Oberdörffer, manufacturer of machinery in Hamburg, and which has since then been placed on the market in several sizes. Having ourselves been favored by Mr. Oberdörffer with materials which explain the construction, and testify to the excellence of his press, we shall, in the following, give a short resumé of Dr. Hirsch's paper.

The press is based upon the principle of the compound, or elbow-lever, but instead of being, as usually, applied in a horizontal direction, it is here arranged in a vertical direction. The compound lever was adopted on account of its well-known great power, yielded by a comparatively small expenditure of force. The more moderate pressure which is at first necessary is obtained by turning a crank and fly-wheel; afterwards, the lever is brought into action to exert the utmost possible power. In the largest size of press made (No. 1), the lever has a length of 63 cm. (24¾ inches) and a weight of 2¼ kilograms. Since the crank, fly-wheel, and lever move in a vertical, not in a horizontal direction, they may be set in motion by the workman without leaving his place. In the usual screw presses the length of the lever requires a clear space around the mill, and it often requires two or more men to force the lever around. Besides, the latter kind of press must be most thoroughly fastened to the ground, while the new press here described requires no fastening whatever.

Oberdörffer's Pharmaceutical Press.

Although in the main constructed after Prof. Reuleaux plan, it deviates from the press constructed by the latter—in which the pressing is performed between flat plates—by being provided with a box for receiving the substance to be pressed, because this mode of construction answers best for all possible contingencies. There are many substances which either cannot be pressed between flat plates at all without very great trouble and possible loss, or which require so much preparation in the shape of wrapping and pressing cloths, that they occasion waste of time and increase of expense. In using the box press, it is only necessary to spread the press-cloth over the box, then pour upon it or into it the material to be pressed, to fold the corners of the cloth over it and to bring down the press-plate. With this arrangement, and with a specially provided channel for the exit of the liquid—which is not the case in plate-presses—the advantages of the box press over the latter will be evident. The press-plate being only very little smaller than the bottom of the box into which it descends, it is possible to utilize the whole, or almost the whole surface in the box. The shape chosen for the box is that usually presented by a well-squeezed press-cake, namely square, with rounded corners, and bellying sides. The interior is lined with a strong and thick sheet of pure tin. The relative number of complete turns of the crank and fly-wheel, to the distances created between the

press-surfaces, may be seen from the following table:

Number of Revolutions of Crank.	Distance of Press-Surfaces. Cm.	Inch.	Differences. Cm.
0	0.	0.	0.
5	1.5	about $\frac{5}{8}$	1.5
10	4.3	$1\frac{1}{16}$	2.8
15	8.	$3\frac{1}{8}$	3.7
20	13.	$5\frac{1}{8}$	5.0
25	19.5	$7\frac{3}{4}$	6.5
30	29.5	$11\frac{5}{8}$	10.0
35	46.	$18\frac{1}{8}$	16.5

The greatest distance to which the two surfaces may be separated, with nearly 36 revolutions, is 47 cm. ($18\frac{1}{2}$ inch.); the depth of the box is 9 cm. (ab. $3\frac{1}{2}$ inch.); the remaining distance of 38 cm. (15 inch.) up to the press-plate, elevated to its highest point, is therefore ample to receive, for instance, the whole material left after preparing 6 to 8 litres of a tincture.

Mr. Oberdörffer has calculated the effect of his press No. 2 to be as follows: Supposing a power of 16 kilos to act on the crank, the maximum pressure obtainable would be about 44 cwt. On the other hand, when using the lever, a much larger power may be assumed to be acting at first, and 40 kilos may safely be assumed. In this case, the resulting pressure amounts to 383 cwt. In round numbers, it may be safely asserted that the maximum effect of the press amounts to 400 cwt.

In order to facilitate the removal of the liquid which may have accumulated in the box and not have found an exit by the spout, the press is provided with a tilting attachment, by which it may be brought, even during the highest pressure, into an inclined position.

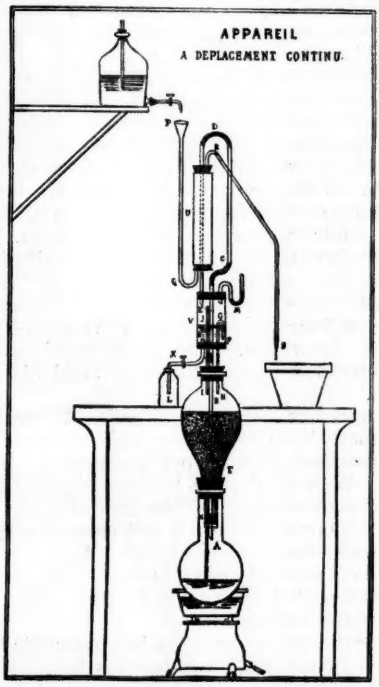
Mr. Oberdörffer manufactures three sizes, viz.:

No. 1. Price 500 mark. } Both provided with a heatable
No. 2. " 350 " } iron press-box.
No. 3. " 350 " With copper box, not heatable.

Apparatus for Continuous Distillation.

In addition to the apparatuses for continuous distillation previously described by us, we shall in the following give a short description of the "lixiviateur continue" constructed by Mr. Ernest Barbier, of Nancy.*

O is a flask with wide neck, destined to receive at first the pure menstruum (water, alcohol, ether, chloroform, etc.), and after the process is started, the saturated menstruum. The flask stands in a water-bath, or, in case a higher heat is required, in a chloride of calcium or oil-bath. The neck of the flask carries the displacement vessel, being a pear-shaped adapter, closed at its lower end with a cork, through which pass two tubes. One of these, *A B C D* passes entirely through the whole system, is recurved on top and, after passing through the condenser *U*, re-enters the receiver at *E*. This tube is rather wide, carries the vapors of the menstruum upwards, and returns the latter, condensed to a liquid, back into the receiver. The neck of the adapter is pierced for three tubes, the central one being the vapor-tube already described, the two others being *J I*, intended to establish a communication between the air spaces of the receiver and the percolator; the other, *H G F*, being a self-acting siphon, the bend of which at *G* rises to about two-thirds of



the height of the condenser. The cylindrical receiver is provided, below, with an additional tube, *K L*, provided with a faucet, by means of which the liquid may be entirely withdrawn. The curved tube *M* is partially filled with mercury and acts as a safety-valve. Cold water is supplied to the condenser *U* from a suitably placed reservoir, and passes out through *R S*. [The author states that, for the purpose of easy detachment, the three tubes, *I J*, *B C*, and *H G F*, between the receiver and percolator, are in two pieces, and joined together by means of rubber-tubing. This will answer well enough, as long as water or weaker alcohol is the menstruum employed. But if chloroform, ether, etc., are used, they will act upon the luting and carry whatever they may have dissolved, into the flask *O*.] The working of the apparatus is, of course, sufficiently intelligible without further description.

* Described and figured in *Compte Rendu des Travaux de la Société de Pharmacie de Meurthe-et-Moselle*. 8vo, Nancy, 1877, p. 52.

Report on Pharmacopœial Assay Methods for Cinchona Barks and Tests for Cinchona Alkaloids.

BY PROF. ALB. B. PRESCOTT.

(*Continued from p. 73.*)

MODIFICATION OF DE VRIJ'S PROCESS.—PROPOSED FOR TRIAL.

PROCEED as stated above in De Vrij's process to [*a*], and then continue as follows: Concentrate the filtrate to the volume of 50 cubic centimetres or less. Transfer, rinsing with a little water, to a glass separator of 100 to 150 cubic centimetres' capacity (a cylindrical vessel fitted with a cork at the upper end, and drawn out and closed with a stop-cock or flexible tube and pinch-cock at the lower end). Add solution of soda in decided excess; then at once add 30 to 40 cubic centimetres of water-washed chloroform, stopper, agitate for a few minutes, set aside for an hour or two, and draw off the clear chloroform layer. In the same way, extract with three smaller portions of the chloroform, using in all 120 to 130 cubic centimetres of this solvent. The chloroform is then recovered by distillation, or is slowly evaporated, the concentrated liquid is transferred, with chloroform rinsing, to a weighed dish, and the residue dried on the water-bath to a constant weight. The grams multiplied by 5 express the percentage of total alkaloids in the bark.

I have left the usual direction, to evaporate the total alkaloids at water-bath temperature to constant weight as the best practical for general use. With quinia, this leaves a slightly variable proportion of water, not far from that of 1 molecule. Quinidia retains 2 molecules of water on the water-bath. Cinchonidia and cinchonia do not hold water of crystallization. The temperature of 120° C. leaves the four alkaloids anhydrous and without loss.

For the *separation of quinia from the mixed alkaloids*, solubility in ether has long been the chief dependence. Unless controlled by other work, the separation by ether is not close enough.

Ether dissolves different proportions of quinidia, cinchonidia, and cinchonia; the proportion being varied by the quantity of quinia present. I had much expectation of being able to separate quinia with cinchonidia from quinidia and cinchonia, by treating the sulphates with chloroform; but trial showed that the presence of the last-named pair of alkaloids decidedly increases the solubility of the two first-named.* The separation of quinia (from that part of the alkaloids soluble in ether) by De Vrij's herapathite method, guarded by washing the crystals with chinoidine herapathite saturated solution, and indirect determination of the chinoidine herapathite left after drying,† is worthy of all respect. But I presume it is not adapted to pharmacopœial use.

The method I venture to propose is simple enough: Separation of quinia, as sulphate, by water. This separation is one of the features of Kerner's test, adopted in the German Pharmacopœia, and in growing favor.* To be sure, there must be a correction for the quinia sulphate dissolved. If some experiments I have undertaken† are not at fault, the water solubility of quinia sulphate is not materially affected by presence of the other alkaloid sulphates, and is pretty nearly constant, in fixed conditions of temperature, time, and neutral reaction upon test-paper. I put in, provisionally, the correction for solubility deduced from the few experiments just referred to, six in number. This is 0.00085 gram of effloresced sulphate of quinia (2 *aq.*) for each cc. of water used. Of crystallized sulphate (7½ *aq.*), the corresponding amount is 0.00095 gram. A solution *saturated* at 15° C. should contain, of crystallized sulphate, according to Kerner, 0.00132 gram to the cc., and other authorities do not vary much from this. I expect to be able to report an average of a greater number of determinations, of the co-efficient of solubility. Any worker interested, is invited to prove the accuracy of the method, and find the correction to be made for solubility. This may be done by comparison with De Vrij's herapathite method, in work upon bark; or by extracting the filtrate with ether, with previous addition of alkali, and then separating the quinia from the ether residue, as herapathite, or by crystallization as sulphate: and it may be done in other ways, chosen by the operator. I may remark that the total alkaloids can be obtained from sulphate filtrates without loss, by adding sodium carbonate in slight excess, evaporating to strict dryness, and extracting with absolute alcohol.

Carles has preferred the use of ammonium hydrate, to neutralize the quinia sulphate, with the statement that ammonium sulphate solution dissolves less quinia sulphate than pure water does.‡ Mr. Thum and myself obtained such low results with Carles' process,§ that I was not en-

* Report of Mr. Thum and the writer: Pro. Am. Phar. Asso. 1878, xxvi., 834.

† DE VRIJ: *Phar. Jour. and Trans.* [3], vi., 461 (Dec. 11th, 1875); Pro. Am. Phar. Asso., 1876, xxiv., 348; *Am. Jour. Phar.* (1876, Mar.), xlviii., 126; Attfield's Chem., Am. Ed., 1879, p. 604.

* Kerner's original report is in *Zeitschrift für analyt. Chemie*, i., 150 (1862); translated in *Phar. Jour. and Trans.* [2], iv., 19 (July, 1862); and given entire in *Am. Jour. Phar.*, xxxiv., 417 (Sep., 1862). The author's dependence is more upon separation by ammonia, in the filtrate, than upon the prior separation by water with the sulphates. But experience has not confirmed the accuracy of separation by ammonia. Hesse, Paul, and others, adopt separation by water, though not as a sole dependence.

† Pro. Am. Phar. Asso., 1878, xxvi., 836.

‡ P. CARLES: xiv., *Am. Jour. Phar.*, 27 (Jan., 1873); *Chem. News*, xxvi., 219 (Nov. 8th, 1872); from *Bull. Soc. Chim.*

§ Pro. Am. Phar. Asso., 1878, xxvi., 837. The recovery of quinia sulphate in three trials was, respectively, 62.66 and 60 per cent of the full amount.

couraged for the use of ammonia. However, I should like to have a comparative trial made with ammonia and soda. There is very little sodium sulphate formed in a faithful execution of this scheme.

The following then is the process proposed, and which I may desire to change in some particulars :

ESTIMATION OF QUINIA IN TOTAL ALKALOIDS.

Treat the total alkaloids of 20 grams of bark with distilled water, slightly acidulated with dilute sulphuric acid, till the mixture is just perceptibly acid. Add distilled water to make 70 parts for each part of alkaloids taken. Make the mixture nearly neutral, but just perceptibly acid to litmus paper ; if necessary, adding drops of very dilute solution of soda. Digest the mixture at 82° to 85° C. for five minutes; then cool, and leave at the temperature of 15° C. for an hour. Filter through a small double filter, not over 7 centimetres (2¾ inches) diameter, the two filters being previously trimmed to equal weight, and receive the filtrate in a graduated vessel. Wash with distilled water until the total washings make 90 parts for each part of the alkaloids taken. During the filtration and washing, the last-mentioned temperature should be maintained. The filter and contents are now completely dried at 50° to 60° C., cooled and weighed, counterpoising with the outer filter. To the weight, in grams, add 0.00085 gram for each cubic centimetre of the entire filtrate ; add 12 per cent of this sum (for crystallization water) ; multiply by 5 to represent 100 grams of the bark, and the product is the percentage of sulphate of quinia (crystallized) equivalent to the quinia in the bark.*

TEST OF SULPHATE OF CINCHONIA.

When dissolved in 100 parts of water, at a boiling temperature, and cooled, the solution does not yield crystals (absence of quinia), and does not show decided fluorescence after acidulation with sulphuric acid (absence of quinia and quinidia). Slight fluorescence may be due to presence of cinchonidia.

When the dried salt is agitated with 70 times its weight of water-washed chloroform at 15° C., any undissolved residue may consist of quinia or cinchonidia sulphate.

THE TEST OF SULPHATE OF CINCHONIDIA.

The precipitation of cinchonidia by potassium sodium tartrate solution, testing the filtrate with ammonia,† constitutes the best single test for general use. The following are Hesse's directions : Digest 0.5 gram of the sulphate of cinchonidia with 20 cc. of water at about 60° C., and add 1.5 grams of tartrate of potassium and sodium. After an hour, filter, and add a drop of ammonia water, when no turbidity should appear.

Hager, in his "Praxis," uses smaller quantities, colder water, and a much larger proportion of both water and ammonia, making the test less severe, and, I think, for medicinal demands to be preferred : Agitate 0.100 gram of the salt with 0.300 gram of tartrate of potassium and sodium, and 20 cc. of cold distilled water. After an hour, with frequent agitation, filter, and add to the filtrate a few drops of water of ammonia, when there should be not more than a slightly turbidity.

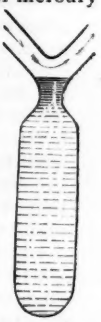
If there is a precipitate by the ammonia, it may be either of quinidia or of cinchonia, and may contain quinia, soluble by excess of ammonia. To exclude quinidia, add iodide of potassium, in quantity equal to that of the cinchonidia sulphate, after the addition of the tartrate, and proceed as above, when a turbidity, caused by ammonia, must be due to cinchonia.*

The precipitate washed and dried contains 0.8084 of its weight of cinchonidia. It may, however, contain quinia, which is not separated by the tartrate test. To distinguish the salt from quinia sulphate, it may well be stated that, when cinchonidia sulphate is dissolved in 120 parts of boiling water and cooled again, the solution does not crystallize, and shows but slight fluorescence on acidulation with sulphuric acid.

(To be Continued.)

A new Gas Valve.

WE illustrate herewith a recently patented gas valve for water-baths which acts, like that of Bunsen, by the expansion of a column of mercury contained in a glass tube, immersed in the bath, but which is so simple in its mode of construction that it is remarkable that it was not sooner thought of. The tube containing the mercury is joined at the angle formed by bending the gas tube, and the rise and fall of the surface of the metal serves to regulate the passage of the gas in the direction shown by the arrows. Unlike some of the gas-valves which we have before illustrated, this one can easily be emptied, cleaned, and refilled, and the level of the mercury can readily be adjusted by emptying or adding a trifle to the contents of the tube.



Reduction of Chloride of Silver by Means of the Galvanic Current.

THE application of the galvanic current to the reduction of metallic silver from its chloride is not new, but has heretofore not been exten-

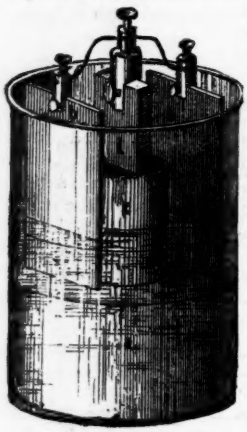
* The tests for the single alkaloids will be found under the headings of their sulphates.

† Hesse : Liebig's *Annalen der Chemie*, Vol. 176, p. 325 (1875) ; *Zeitsch. f. anal. Chemie*, xv., 464 (1876) ; Hager's Pharm. Praxis (1878), II., 1334.

* The precipitates of cinchonidia tartrate and quinidia hydriodate require for each between 1,200 and 1,300 parts of water for solution.

sively practised, on account of the greater or lesser amount of foreign metal thereby introduced into the reduced silver. The defects of this method have been carefully studied by Dr. E. Priwoznik, whose improved process for reducing large working quantities of chloride of silver is outlined in the following:

Into a glass cylinder, *a*, 32 cm. (12½ inch.) high, and 22 cm. (8⅝ inch.) wide with flat bottom, the chloride of silver to be reduced is placed. The quantity of the chloride may be as large as will fill the lower third of the capacity of the glass cylinder. Into the chloride are introduced two strips *b*, *b*, of sheet-silver, about 12 cm. (4¾ inch.) wide, and between them is placed a cylindrical porous earthen cell, *c*, 27 cm. (10⅝ inch.) high, and 8.5 cm. (3⅜ inch. wide, which rests upon the bottom of the glass cylinder and is filled with acidulated water. Upon the chloride of silver, outside of the cell, diluted sulphuric or hydrochloric acid is poured, to about the height indicated in the cuts. A piece of zinc, *d*, is now introduced into the interior of the cell *c*, and united by means of brass clamps and previously well ignited copper wires, with the strips of silver. Under these circumstancee—since zinc here represents the positive and silver the negative pole—the electric current passes from the silver through the conducting wires to the zinc, and from the latter, through the liquid, to the silver. If care is taken to gradually bring, by occasional stirring, all the chloride of silver within the sphere of the galvanic current—and the size of the apparatus is such that the contents may be stirred without taking the arrangement apart—it will be possible to reduce 1.4 to 1.7 kilos (about 3 lbs. 1 oz. to 3 lbs. 12 oz.) in 4 to 6 days. The whole apparatus may be put together without difficulty, and, when the necessary parts and fittings are once at hand, will last a long time. It is, of course, highly important to see that the surface of the metals, particularly at the points of contact, be thoroughly clean and that the set-screws be free from any grease or oil. The shape of the piece of zinc to be placed in the porous cup is of no special importance. It may be a solid piece cast for the purpose, or a number of strips of zinc may be placed on top of each other and held together by wire or clamps.—*Dingler's Polyt. Journ.*, 235, 120.



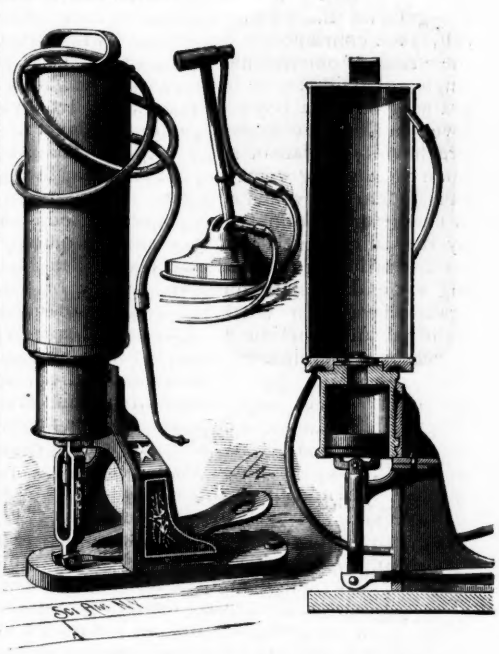
Priwoznik's Apparatus.

How Urari is Made.*

Dr. Richard Schomburgk, the director to the Adelaide Botanical Gardens, has just published a *brochure* in which he states what is known as to the method of preparing urari or curare, the famous deadly arrow-poison of some of the Indian tribes in British Guiana. His brother, in 1837, vainly endeavored to witness the manufacture of this poison; but Dr. Schomburgk himself, in a visit to the Canuku Mountains, near Pirara, in 3° 33′ N. and 56° 16′ W., succeeded in getting an old Macusi Indian to show him the method of manufacture among that tribe. The Indian, after promising to comply with Dr. Schomburgk's request, tried every possible means of evasion, but the addition of more powder and knives brought him to the scratch. The process was carried out in a small hut in the village, known as the urari-house. The Indian began first to take the bark from the strychnos, which they had brought from the Ilamikipang, and then produced the other ingredients and separated the required quantities. The native names of the other plants used are tarvieng, wakarimo, and tararemu, to all appearances species of strychnos. The Indian said they grew far away in the mountains at five days' distance. The proportion of the several ingredients would be according to weight as follows:—Bark of Strychnos toxifera, 2 lb.; Strychnos Schomburgkii, ¼ lb.; arimaru (Strychnos cogens), ¼ lb.; wakarimo, ¼ lb.; root of tarvieng, ½ oz.; root of tararemu, ½ oz.; the fleshy root of muramu (Cissus spec.); four small pieces of wood of a tree of the species of Xanthoxyleæ, called manuca. The old Indian, having finished his preparations, went to his hut and returned with a new earthen pot, holding about seven quarts, and two smaller ones, also quite new, formed like flat pans. In the first vessel the poison was to be boiled, in the other it was to be exposed to the sun for condensation. The great strainer or funnel, made out of palm leaves, was cleaned, and fresh silk-grass was put into it to strain the fluid; a great block of wood sunk into the ground to serve as a mortar was cleaned, and in it the several ingredients were crushed. The urari preparer, after having arranged everything, built a hearth with three stones, laid the wood ready to light the fire, and went away to fetch (as Dr. Schomburgk was informed, for he had not exchanged a single word with the old Indian) the utensils to light the fire, though there was a large fire burning, which was of no use, having been lighted by profane hands. Neither dared the Indian use any water except that brought in the pot to be used for the operation; in fact, no other implement could be used but such as has been made by the cook, neither would he have assistance from any of the inhabitants. Any transgression of the sacred rules

* From *The Times*.

would nullify the operation of the poison. In addition to the fleshy root of the muramu, he crushed the several kinds of bark, but each one singly, on the mortar, lighted the carefully piled-up wood, and then threw first into the pot which was filled with water, the bark of the *Strychnos toxifera*. As soon as the water began to boil the Indian added at certain intervals a handful of the other ingredients, except the muramu root. In doing so he bent his head over the pot, strongly blowing into the mixture, which he said afterwards added considerably to the strength of the poison. During the process he only kept as much fire as was necessary for slow boiling, carefully skimming the foam collecting on the extract. Within the next twenty-four hours the old man left the fire only for one moment, keeping the mixture at an equal heat. After the lapse of twenty-four hours the extract became thick, and was reduced by the boiling to about a quart, the color being that of strong coffee. The old cook then took the extract from the fire and poured it into the strainer, the extract trickling slowly into another flat vessel, and left the remainder in the silk-grass. After exposing the strained extract to the sun for about three hours, he added the slimy juice pressed out of the root of the muramu, which had previously been soaked for a short time in the boiling poison, and then had been pressed out. The poison immediately exhibited a remarkable alteration, curdling to a jelly-like substance. After this peculiar process he poured the poison into earthen vessels, flatter than those before mentioned, for the purpose of bringing the poison to a consistence equal to that of thick treacle by exposing it to the sun. Afterwards it was poured into the peculiar small calabashes, or half-round earthen vessels, manufactured only for that purpose, where it ultimately changed to a hard substance. On the third day the poison was ready, when the cook, satisfied with the product, tried the strength of the poison on some lizards in Dr. Schomburgk's presence. He dipped the point of a pin into the poison, let it dry, wounded one of the lizards in one of the toes of the hind foot, and then let it run. In nine minutes the peculiar symptoms of the poison made their appearance, and one minute after the slightly-wounded animal was dead. A rat died in four minutes, and a fowl in three. The Indians declare the poison loses its effect after two years, but its power can be destroyed by pouring some manihot juice upon it. Dr. Schomburgk took some of the urari to Berlin with him, and made several experiments with it, when he found that it frequently took from fifteen to twenty minutes, according to the tenacity of life, before death ensued. A commission of scientific men was appointed by the German Government to report on the effects of the poison, and many experiments were made, from the frog to the horse. Professor Heintz made a careful analysis of the poison, and, though it was made from strychnos, he found it contained no strychnine. From experiments made by Professors Virchow and Münter they conclude :—1. That the urari kept dry will, after the lapse of five years, retain its intense and rapid efficiency. 2. That it has no effects like those of strychnine. 3. That it is not a tetanic poison, but operates by stupefying. 4. That urari causes palsy, produces a discontinuance of the voluntary movements of the muscles, with continued functions of the involuntary muscles of the heart, intestines, etc. 5. That the external application of urari is not fatal, but only when absorbed through a wound. 6. That death is not the direct result of poisoning, but of the discontinuance of the mechanical action of respiration. Urari, Dr. Schomburgk states, has been successfully used both in tetanus and hydrophobia.



Burgess' Portable Air-Compressing Apparatus.

THE *Scientific American* recently published the adjoining illustration of a new apparatus for compressing air to be used with a blow-pipe. It appears to us to be equally well adapted for the needs of those also who employ atomized fluids in the treatment of diseases of the air passages. We have corresponded with Mr. J. Elliot Shaw, of No. 154 South Fourth st., Philadelphia, its manufacturer, and judging from his account of the pressure which can easily by maintained for a period of five to ten minutes—or as long a time as is commonly required for the application of each remedy—our belief would appear to be correct. The illustration sufficiently shows the

arrangement and mode of action of the pump. Its weight is about twelve pounds, and its total height is about twenty-four inches. The pump-cylinder is two and a half inches in diameter, with three inches stroke.

Effects of Salicylic Acid.

In a paper on the action of salicin and salicylic acid in acute rheumatism, which was read before the Harveian Society by William Squire, M.D., F.R.C.P., and an abstract of which was published in the *Lancet*, December 20th, 1879, the author remarks that many objections to the use of this remedy have disappeared since the dose has been more accurately determined. Less than half a drachm of the acid, or forty grains of salicylate of sodium, taken daily by a healthy man, will not produce any marked effects, but fifty grains of the acid, or a drachm of its sodium salt, taken continuously for two days, will do so; the effects of one drachm of the acid taken at a single dose will also be felt for two days. Sixty grains given to a boy six years old, in typhoid fever, caused great depression for two days. A drachm of salicylate of sodium, given one afternoon to a young woman with rheumatic fever, caused delirium, which subsided in three hours. A characteristic of nervous symptoms produced by the salicylates is that they subside quickly on discontinuing the medicine, even when during some days such quantities as 360 or 600 grains have been taken, and have produced delirium and albuminuria. Extreme effects produced by 340 grains, given in six hours, by mistake, to a girl at Kiel, were recovered from in ten days. Some large doses of salicin and salicylic acid said to be harmless, were probably not all absorbed. Fifteen grains of salicylic acid is the smallest dose reported as producing nervous symptoms. Delirium occurred in two of my cases, and some deafness in one, before giving the salicylates. Symptoms of disease, such as of cerebral rheumatism and of embolism, have been attributed unjustly to salicylic acid. The continuance of extreme doses is of no service in rheumatism, and may be dangerous in typhoid or in erysipelas from pulmonary congestion being either masked or increased.

A too enthusiastic claim of efficacy has been a hindrance to the more general employment of this remedy in rheumatism; the disease is too serious to be spoken of as henceforth an affair of a few days only. Both pericarditis and endocarditis have been known to arise during this treatment. It will neither prevent nor control the danger of hyperpyrexia. That relapses are more frequent afterward may be doubted: the *onus probandi* rests with those who make the objection. Under other treatment a patient continuously febrile for ten days has no relapse, because there is no remission; the tendency to relapse after defervescence has in all cases to be guarded against; in this it is readily relieved, and the time in which it is likely sooner over.—*Med. and Surg. Rep.*

A New Apparatus for the Separation of Iodine and Bromine.

Nearly two years ago the methods previously in use for obtaining bromine were greatly improved by Frank, who caused the liquid containing the bromine in form of bromide to traverse an apparatus through which a current of chlorine was passing in opposite direction.

This method has now been further improved by R. Müller and H. Böckel (Germ. Pat. No. 7743) so that it is equally applicable to the manufacture of iodine.

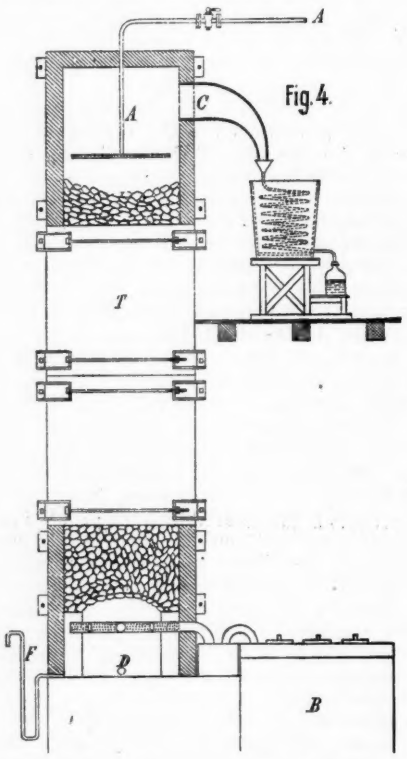


Fig. 4.

A tower, *T*, built of stone, clay, or wood, is filled in the same manner as the so-called Glover-tower, with coke, stones, or other similar substances, leaving, however, a free space both above and below. In the accompanying woodcut the uppermost and the lowest compartment of the tower are represented in cross-section, showing the upper and lower limit of the layer of coke, etc. The liquid containing iodine or bromine, heated to a proper temperature, is introduced through the pipe *A*, whence it is showered in a finely distributed spray upon the coke, while at the same time a current of chlorine gas, which is generated in the apparatus *B* and enters

below, meets the descending liquid, liberates the iodine or bromine, and converts the halogen compound into a chloride, which flows into the cistern below. The current of chlorine gas is so regulated that no free chlorine ever reaches the top layer of the coke; so there will be no chlorine carried over with the vapors of iodine or bromine. These latter, after being separated from the halogen compounds, rise, and pass through the wide neck *C*, into the condenser, which, in the case of bromine, may have the construction shown in the figure. The liquid in the cistern retains a certain quantity of free chlorine, which is driven out by a current of steam, after which the residuary liquid is drawn off from time to time by the siphon *F*.—*Dingler's Polyt. Journ.*, 235, 53.

Quebracho Bark.

THE therapeutic investigations made by Dr. Penzoldt, of Erlangen, with this new remedy, have led to the following results:

1. Quebracho bark appears in many cases to be a useful palliative for dyspnœa in pulmonary emphysema and chronic bronchitis; in other cases, however, the remedy is without any effect, especially in aged individuals. Its value as a remedy in dyspnœa dependent upon defective cardiac valves is at least doubtful.

2. If used for any length of time, the drug produces disagreeable effects which make its continuance difficult.

3. The frequency of respirations is diminished by the drug the more decidedly, the greater their excess has been over the normal condition.—*Pharm. Zeit.*

Mr. O. Primke lately sent a communication to the *Pharm. Zeit.*, in which he draws attention to possible mistakes which may arise from a misinterpretation of the name *Quebracho*. The latter is a Spanish word and means "iron wood." There are four different trees which yield, in commerce, quebracho-wood and bark; hence a confusion might easily arise. These four kinds are the following:

1. *Aspidosperma Quebracho* Schlechtendahl. Nat. fam. Apocynaceæ. Native name: quebracho blanco. This tree grows in the province Catamarca in the Argentine Republic. The bark is used by the natives in malaria and asthma. This is the quebracho which constitutes the remedy lately introduced in Europe, and also in this country.

2. *Loxopterygium* (or *Quebratschia*) *Lorentzii* Grisebach. Nat. fam. Terebinthinaceæ. Native name: quebracho colorado. The tree grows principally in the province Corrientes in the Argentine Republic. Both the wood and bark are highly valued in commerce as a tanning agent.

3. *Jodina rhombifolia* Hooker et Arnot. Nat. fam. Ilicineæ. Native name: quebracho flojo. The wood and bark are generally confounded, in trade, with the preceding, and are used for the same purposes.

4. *Machærium fertile* Grisebach. Nat. fam. Leguminosæ; Dalbergieæ. (Syn. *Tipoana speciosa*). Native name: tipa. This tree likewise furnishes wood and bark for tanning purposes, both of which, however, are of less value than those mentioned before.

Mr. Primke received this information from Mr. Hieronymus, professor at the University of Cordoba, who also furnished him with specimens of the wood and bark of the *Aspidosperma Quebracho*, which corresponds in every respect with the pharmacognostic description of the bark given by Dr. Dingler, Custos at the Botanical Garden of Munich.—

Dr. Burgos * recommends several preparations of quebracho, which may, of course, be administered in substance. *The infusion* or the *decoction*, usually of the strength of one in twenty, is improved by making it with the aid of a little sulphuric or acetic acid, whereby more of the alkaloid is extracted, and the resulting preparation is rendered much clearer. Tincture of quebracho is prepared by macerating 1 part of the bark in 5 parts of 56% alcohol for 8 days and filtering.

Compound Tincture of Quebracho: Quebracho bark, 2 parts; orange peel, 1 part; alcohol (56%), 5 parts.

Wine of Quebracho: Quebracho bark, 1 part; alcohol (56%), 2 parts; white wine, 16 parts. Leave the alcohol in contact with the bark for 24 hours, then add the wine, macerate for 8 days and filter. The author specially recommends San Juan or Mendoza wine, because either of them contains but little tannin, and possesses a special aroma which communicates an agreeable flavor to the preparation.

Elixir of Quebracho: Wine of quebracho mixed with a sufficient amount of sugar.

Extract of Quebracho: Both an aqueous and an alcoholic extract may be prepared.

Syrup of Quebracho: Quebracho bark, 3 parts; water, 32 parts; sugar 16 parts. Boil the bark with the water, filter, and evaporate down to one-fourth; then add the sugar and make the syrup in the usual manner.

Preparations with the Alkaloid: Aspidospermine or quebrachine is insoluble in glycerin. It dissolves readily in fats and fixed oils, and may be incorporated with cod-liver oil in larger proportion than quinine. The following is a suitable formula:

Aspidospermine	6 to 8 parts.
Cod liver oil	100 "

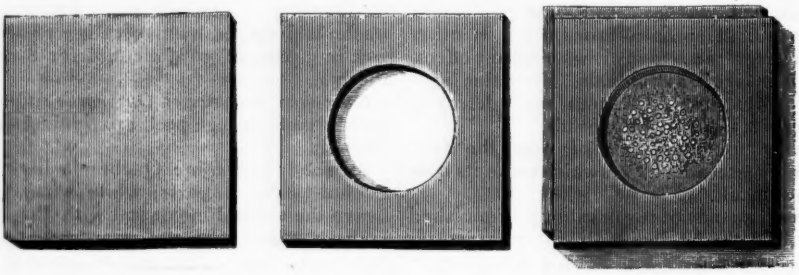
Attacks of Sneezing caused by changes of temperature are said to be arrested by plugging the nostrils with cotton wool.

* In a paper published in the *Revista Farmacéutica* and abstracted in *Pharm. Journ.*, Dec. 20th, 1879.

A simple Pill-Finisher.

A CORRESPONDENT of the *Pharmaceutische Centralhalle* describes the following simple contrivance as being far superior to the more expensive articles for "finishing" pills usually sold in the market.

Take two square pieces of pasteboard of about 1.8 to 2.0 millimetres ($\frac{1}{15}$ to $\frac{1}{12}$ inch) in thickness, and 16–17 centimetres ($6\frac{1}{4}$ to $6\frac{3}{4}$ inch.) square. In the centre of one of these pieces cut out a circular hole of 10.5 cm. ($4\frac{1}{8}$ inch.) diameter. Next select a round pasteboard box, of a diameter of 8 to 8.3 cm. ($3\frac{1}{8}$ to $3\frac{1}{4}$ inch.), the bottom of which must be perfectly flat and even, and must have a trace of roughness when the finger is passed over it. This property must also be possessed by the pasteboard, though the roughness should not be so coarse that it can be distinguished by the eye. When the apparatus is to be used, place the perforated disc on the whole one, sprinkle some suitable powder into the circular hole, then introduce the pills and round them by means of the pasteboard box. Several sizes of these squares with different-sized holes and appropriate boxes may be kept on hand.



Methylic and Ethylic Alcohol: Their Detection in Presence of Each Other.

BARDY and RICHE employ for the detection of ordinary (ethylic) alcohol in wood-spirit the following method. The spirit in question is treated with sulphuric acid and permanganate of potassium, whereby only the ethylic alcohol—not the methylic—is converted into the corresponding aldehyde. The precipitated oxide of manganese is dissolved by the addition of a small quantity of hyposulphite of sodium, and to the solution are added a few drops of a dilute solution of hydrochlorate of rosaniline. If the wood-spirit contained even a trace of ethylic alcohol, the generated aldehyde will convert the fuchsine into "violet," and the liquid will assume a violet color.

On the other hand, if ethylic alcohol is suspected to contain methylic alcohol, or wood-spirit, the following method is recommended by Bardy, in whose laboratory it is in daily use. A sample of the alcohol to be examined is treated with iodine and amorphous phosphorus, in a retort, and the distillate mixed with aniline. (Pure ethylic alcohol, in this case, yields only ethyl-aniline; an impure alcohol, however, produces a mixture of ethyl and methyl-aniline.) The aniline compound thus formed is isolated, then heated with nitrate of copper, and the product dissolved in alcohol. If the sample examined consisted of pure ethylic alcohol, the latter solution will have a yellow color; but if it had contained even as little as 1% of methylic alcohol, the solution will be violet. The latter color may be fastened on wool, so that the evidence of the impurity may be preserved if so desired.—*Dingler's Polyt. Journ.*, 234, 335.

Chloride of Zinc a Reagent for Alkaloids.

A. JORISSEN concluded that the characteristic colors which certain alkaloids produce when treated with concentrated acids depend upon a withdrawal of water, and was therefore led to see whether chloride of zinc, which is extremely hygroscopic, would produce the same results. This he found to be the case. The chloride of zinc must be chemically pure, particularly free from nitric or nitrous acids. It is prepared by letting pure hydrochloric acid act upon an excess of distilled zinc, filtering the solution through (purified) glass-wool, evaporating to dryness, and fusing the residue. One gram of this chlorjde is dissolved in a mixture of 30 cc. of concentrated hydrochloric acid and 30 cc. of water. A little of the solution of an alkaloid or its hydrochlorate is placed upon the inner side of a crucible cover and carefully evaporated to dryness on the water-bath; two to three drops of the chloride of zinc solution is then added, and the cover gently warmed on the water-bath. As the solution gradually evaporates, there appear at the margin of the still liquid portion certain colored rings, characteristic for particular alkaloids—provided they are present singly. Strychnine produces a bright rose-red, thebaine yellow, narceïne olive-green, delphinine brown-red, berberine yellow, veratrine red, quinine pale-green, digitaline chestnut-brown, salicin reddish-violet, santonin bluish-violet, cubebin crimson.—*Chem. Zeit.*

RECENT PAPERS.

Thulium and Holmium; two Newly Announced Elements.—P. T. CLEVE, in attempting to obtain pure erbia, was led to suspect the existence of two other earths in the erbia obtained. On fractionating the latter carefully, two characteristic spectroscopic reactions were obtained, one for each of the two new substances. One of these he named *thulium*, and (according to Mendelejeff's law) it should have an atomic weight of about 113; the other, which he called *holmium*, should have an atomic weight less than 108; its oxide appears to be yellow.—*Compt. Rend.* and *Journ. Chem. Soc.*, Jan.

The Art of Dispensing.*

(*Continued.*)

REMOVAL OF STAINS.—Marking-ink stains may be removed with cyanide of potassium or corrosive sublimate; iodine stains with a solution of hyposulphite of soda. Writing-ink stains with oxalic acid, or salts of lemon. Logwood stains with diluted sulphuric acid, liq. ferri perchlor., with soap-and-water, and a little acid. mur. dil. Mortars stained with powders may be cleansed with either ammon. carb. or acid. sulph. Bottles stained may generally be cleansed with acid. muriatic. and water.

CAPPING BOTTLES.—In capping bottles with leather it is a good plan to soak for a short time in aqua calcis, which bleaches it. Hunt's pleated capping papers for bottles of medicine are convenient.

TINCTURE HYOSCYAMI, P.B., when mixed with water, should present a cloudy appearance. This is not the case if tincture be made with the annual leaves.

MUCIL. ACACIA will keep fresh if put into bottles hot, filled up, and corked. In an emulsion, unless fresh mucilage is at hand, it is better to use the powder.

PULV. TRAGACANTH.—In a mixture with tincture, put the tincture into bottles, shake so as to cover the sides, then add tragacanth, and shake. If no tincture is ordered, put about 3 ss. or 3 i. S.V.R. into a measure, add tragacanth, and stir up with glass rod, then add the water, etc.

OL. AMYGDAL. ESS. should be kept *sine* acid. To test if any (hydrocyanic) acid be present, place a drop of the oil on a white dish, add a drop of solution of potash and a minute quantity of a ferrous and ferric salt. On acidifying the mixture, Prussian blue will be formed if HCN is present.

CONF. SENNÆ, if practicable, should be made at home.

ACID. HYDROCYANIC. DIL. is best measured with a long graduated syringe, and put into the bottle last. This will keep well if prepared as follows:—

Acid hydrocyan., P.B.	℥ i.
Glycerin	ʒ iij.
Aquæ	ad ℥ ij.

In corked bottle. N.B.—A very distinct caution label, and dose always checked.

Powders containing ammonium carbonate or any deliquescent substance should be wrapped in waxed paper, and in the case of ammonia be put into a bottle as well.

If S.V.R. be objectionable in powdering camphor, a little soap is a fairly good substitute.

If obliged to make *artificial* waters, never rub ess. oil with magnesia, as from its slight solubility in water the magnesia might precipitate alkaloids or phosphates from a mixture. It may be detected by rubbing a small portion of calomel in a mortar with the suspected water; if magnesia be present, the calomel is partly converted into black oxide. The best way is to rub the oil with a little powdered pumice-stone or kaolin.

TINCTURE OF CALABAR.—

Calabar beans, powdered	100 parts
Alcohol 80°	500 "

Macerate for 10 days, press and filter.—*Société de Pharmacie de Paris.*

* From the *Chemists' and Druggists' Diary* for 1880.

HOMŒOPATHIC DISPENSING.

Homœopathic dispensing is one of the simplest matters in the world, and therefore requires but very little description. In prescriptions, medicines are ordered in the form of mixtures or powders, and never contain more than one active ingredient.

To those not familiar with these documents, a few examples will best serve to explain their mystery:

I.

Trit. sulphur (3).....gr. x.

Ft. pulvis. Mitte x., sumat unum in aquæ cochleari uno, omni. nocte h. s.

To dispense the above 10 grains of sulphur trituration (3) are to be mixed with about 30 grains of sugar of milk, and the whole divided into ten powders. Great care should always be observed in the outer manipulation of homœopathic prescriptions, and, indeed, this remark applies to all dispensing. The powders are usually covered separately with tinfoil, in order to preserve their properties.

II.

Aconiti nap. glob.....ʒ ℈

Sacch. lactis q.s., ft. pulvis; unus quartis horis, super linguam capiendus. Mitte xx.

In this case globules are to be used—two in each powder. Unless specially stated, 3 grains of sugar of milk is the proportion for each powder. It will be noted that the difference in the directions given is, that in the first instance the dose is to be dissolved, while in the second, it is taken dry on the tongue.

III.

Tinct. nucis vomicæ	℥ ss
Aquæ destil.	ad ℥ vi.

M. ft. mistura cujus capiat cochlearia duo magna tertiis horis.*

In the last two instances the figures following the medicine indicate the number of drops or globules, and the attenuation. In the third, for example, *twelve* drops of the *sixth* dilution are prescribed for the mixture.

IV.

Nux vomica.....ʒ ℈

Sacch. lactis.....q.s.

Ft. pulvis. Mitte vi. Sign. 1, 3, 5, 7, 9, 11.

Belladonna.....ʒ ℈

Sacch. lactis.....q.s.

Ft. pulvis. Mitte vi. Sign. 2, 4, 6, 8, 10, 12.

One powder to be taken alternately, in the order they are numbered, every two hours.

V.

Merc. vivus.....ʒ ℈

Sacch. lactis.....q.s.

Ft. pulvis. Mitte iij. Sign. 1, 2, 3.

Sacch. lactis.....gr. iij.

Ft. pulvis. Mitte iij. Sign. 4, 5, 6.

The powders are to be taken every four hours in the order they are numbered.

The above prescriptions (Nos. 4, 5) are specimens of homœopathic prescriptions, in the first of which it is desired to give nux vomica and belladonna in alternation. In the latter case it is evident that the object is for the patient to take no medicine during the second day.

SOLUBILITIES.

Salicin is soluble	℈ i.	℥ i. aq.
Borax	ʒ i.	ʒ iij. aq.
Boracic acid	ʒ i.	ʒ iv. aq.
Chlorate potash	℈ i.	℥ i. aq.
Gallic acid	5 grs.	ʒ i. aq.

When larger quantities than the above are ordered, to ʒ i. aq., they should be powdered and put into bottle, and not attempted to be dissolved.

* [We have in only a few instances made slight alterations in the author's prescription Latin. We could have made more, but refrained from doing so.—ED. N. R.]

DISPENSING CONVENIENCES.

It is usual for dispensers to keep solutions of salts often required in prescriptions, as, for instance:—

Sulphate of Magnesia—A 20-oz. solution containg 10 oz. of the salts. Label f ℥ i. represents ℥ ss. magnes. sulph.

Sodæ Bicarb.—A 20-oz. solution containing 2½ oz. of the salt. Label f ℥ i. represents ℥ i. of sodæ bicarb.

Potassæ Bicarb.—A 20-oz. solution containing 5 oz. of the salt. Label f ℥ i represents ℥ ij. of potass. bicarb.

Potass. Acet. may be kept in solution 1 in 2.

Solution of Alum.—In a 20-oz. bottle put alum ℥ x. and fill up with cold water. Label: Solutio aluminis; each f ℥ i. represents ℥ ss. of alum.

Ferri Ammon. Cit.—A 4-oz. solution containing 1 oz. of the salt. Label f ℥ iv. represents ℥ i. of ferri. ammon. cit.

The powders for chalk mixture may be kept ready mixed, so that 1 oz. of the mixture with 7½ oz. of cinnamon water will make mist. cretæ co., B.P.

Powders for compound pills should be kept in w.m. stoppered bottles and should be clearly labelled.

Pil. Asafœtidæ Co.—The mixed gums may be kept in a powdered state, and the bottle labelled:—Pulv. pro. pil. asafœtidæ co., 6 parts, with 1 part of treacle, makes pil. asafœt. co., B.P. (pil. Galbani co., P.L.).

Pil. Cambogiæ Co.—Mix the powders, and label: Pulv. pro. pil. cambogiæ co. 5 parts, with 1 part syrup, forms pil. cambogiæ co., B.P.

Pil. Coloc. Co.—Mix the powders and the oil of cloves, and label: Pil. coloc. co. Water, q.s., forms pil. coloc. co., B.P.

Pil. Rhei Co.—Mix the powders and the oil of peppermint, and label: Pulv. pro. pil. rhei co. 2 parts with 1 part of treacle makes pil. rhei co., B.P.

The above are specimens. Pil. calomel co., pil. aloes et ferri, pil. aloes et myrrhæ, and others may be kept in a similar condition; but they should always be labelled distinctly as to the excipient, so as to avoid reference and ensure accuracy. If the pill mass to which they are added would be too soft, it is quite legitimate to substitute a dry excipient, such as sugar, pulv. tragacanth, pulv. glycyrrh., bread-crumbs, etc., for treacle or syrup.

The bottle containing saccharated carbonate of iron may be labelled: 4 parts with 1 part confection of roses, make pil. ferri. carb., B.P.

Extracts of aloes are generally kept in the form of powder.

Mist. Ammoniaci Conc., 1 in 7.—This may be made by emulsifying 1 part of ammoniacum with four parts of water. For use add 1 part to 7 parts of water.

Syrups.—Easton's may be made, when required, by dissolving the quinia phosphate in syr. ferri phosp., and adding liq. strychnia, thus:—

Quinia phosphate	gr. 8
Liq. strychniæ, P.B.	♏ 30
Syr. ferri phosph.	ad ℥ i.

Syr. Ferri Iod., if exposed to the light, in a window for instance, will keep clear indefinitely if a piece of iron wire be immersed in it.

Some convenient concentrated liquors for the extemporaneous preparation of most of the chemical syrups have been recently introduced by Messers. Fletcher & Fletcher.

Oleate of Mercury, by dissolving the hydrarg. ox. flav., P.B. in oleic acid, 10%.

e.g. Hydrarg. ox. flav.	℥ i.
Oleic acid	℥ x.

Mix together in a mortar for 24 hours, stirring occasionally. If ordered with morphia, add 1 grain alkaloid to 1 drachm of the oleate.

Liq. Ammon. Citrat. will keep very well if made concentrated (one and three).

Liq. Am. Acet.—Saturate acetic acid, P.B., with carb. ammon. This product diluted with 4 parts of aq.=the P.B. solution.

Mist. Ferri Co.—The emulsion should be kept ready made, but the iron added only at the time of using.

In reference to the rubbing down of poisons, etc., with sacch. lact. it is best to keep the more commonly occurring ones ready, such as strychnia, morphia, hyd. perchlor., arsenious acid, about 1 grain in 6 or 8 of the sacchar. lact. Such quantities as ¼ grain can then be weighed with quickness and accuracy.

SATURATION TABLES.

Taken, by permission, from Attfield's "Chemistry: General, Medical, and Pharmaceutical."

Equivalent weights of citric acid, tartaric acid, carbonate of potassium, bicarbonate of potassium, carbonate of sodium, bicarbonate of sodium, carbonate of ammonium, and carbonate of magnesium: repeated (in **black**) for 20 parts of each, and incidently (in roman) for other proportions. (Exact to two places of decimals.)

Citric acid ($H_3C_6H_5O_7,H_2O$)÷3×2=140	20.00	18.66	16.96	14.00	9.78	16.66	23.72	29.31
Tartaric acid $H_2C_4H_4O_6$=150	21.43	20.00	18.26	15.00	10.49	17.85	25.42	31.41
Carbonate of potassium K_2CO_3+16% Aq=164.285	23.47	21.90	20.00	16.43	11.48	19.52	27.87	34.40
Bicarbonate of potassium $2(KHCO_3)$ = 200	28.57	26.66	24.34	20.00	13.98	23.81	33.89	41.90
Carbonate of sodium $Na_2CO_3,10H_2O$ = 286	40.08	38.13	34.81	28.60	20.00	34.04	48.47	59.98
Bicarbonate of sodium $2(NaHCO_3)$ = 168	24.00	22.40	20.45	16.80	11.74	20.00	28.47	35.18
Carbonate of ammonium $(N_4H_{16}C_2O_6)$+2=118	16.85	15.73	14.36	11.80	8.25	14.04	20.00	24.71
Carbonate of Magnesium $(MgCO_3)_3,Mg2HO,4H_2O)$ + 4 = 95.5	13.64	12.73	11.62	9.55	6.68	11.37	16.18	20.00

The amount of acid given in any column will saturate the amount of carbonate in the same column, and *vice versâ*.

The amounts of carbonate in any column are equal to each other in chemical power.

Lemon juice (sp. gr. 1.039) contains, on an average, 7 per cent by weight of citric acid.

The same Table in round numbers, for purposes of prescribing and dispensing:—

Citric acid	20	19	17	14	10	17	24	30
Tartaric acid	22	20	18	15	11	18	25	32
Carbonate of potassium	24	22	20	16	12	20	28	35
Bicarbonate of potassium	29	27	24	20	14	24	34	42
Carbonate of sodium (cryst.)	40	38	35	28	20	34	49	60
Bicarbonate of sodium	24	22	20	17	12	20	29	36
Carbonate of ammonium	17	16	14	12	8	14	20	25
Carbonate of magnesium	13	13	11	9	7	11	16	20

The table is read thus:—20 grains of citric acid will saturate 29 grains of bicarbonate of potassium; 20 grains of bicarbonate of sodium will saturate or be saturated by, 18 grains of tartaric acid; 11 grains of tartaric acid = 8 grains of carbonate of ammonium; 20 grains of bicarbonate of sodium are equivalent to, or will do as much work as 34 grains of carbonate of sodium; 14 grains of citric acid are as strong as 15 of tartaric acid.

Lemon juice contains, on an average, 32½ grains of citric acid in 1 fluid ounce, or 4 grains per fluid drachm.

Ferric Chloride as a Purifier of Water.—GUNNING has used ferric chloride with great success for purifying drinking water from impurities. For the water of the river Maas, the quantity required was 0.032 gm. of ferric chloride per litre. After standing 36 hours, the water becomes clear and can be used without injurious effect. —*Bied. Centr.*, 1879, 467.

Substances which Attack Bohemian Glass.—FRICKINGER has observed that Bohemian glass bottles are attacked by sodium tartrate, magnesia, crystallized sodium carbonate, potassium carbonate, and by a solution of camphor and alcohol.—*Dingler's Polyt. Journ.*

Carbolized Jute.—DR. KUSTER* has the following on *jute* and *carbolized jute*: Jute is the fibre of various species of *Corchorus*, particularly of *C. capsularis*, nat. fam. Tiliaceæ, native of East Indies, but cultivated in other countries (Southern United States) and in constantly increased demand for the manufacture of textile fabrics. The jute fibre resembles that of flax, being a little stiffer, and has the property, so important for surgical purposes—of beipg hollow, and therefore capable of soaking up liquids. It was first used by Thiersch as a base for holding salicylic acid. *Carbolized jute* is now used in two forms, moist or dry. The moist variety is prepared, according to Köhler, as follows: Crude jute is formed into round discs ("Jute-Kuchen," jute-cakes), about 15 cm. (nearly 6 inch.) in diameter; a number of them, separated only by pieces of parchment-paper, piled on top of each other in a tall glass-cylinder, and a 5% solution of carbolic acid poured upon them, in which they are allowed to remain for one hour. The acid is then poured off and may be used over again. Afterwards the discs are preserved, until they are wanted for use, in a 2% solution. These discs are placed upon wounds and fastened by a bandage; but, as the carbolic acid soon evaporates, they must be moistened about twice daily with carbolic acid solution.

Dry carbolized jute is prepared, according to Münnich, thus: A solution of 50 parts of carbolic acid, 200 of resin, 250 of glycerin and 550 of alcohol, is poured over one pound of jute; the whole well worked together, and, as soon as the fibres begin to agglutinate (on gradual evaporation of the alcohol), they are carefully picked loose and spread out to dry. The picking is performed more readily, if 50 parts of stearin are added to the solution; but in this case the jute requires a longer time to dry. When dry it is wrapped in parchment paper and preserved in a cool place.—*Pharm. Zeit.*, No. 6.

"Solidified" Bromine.—The utility of bromine as a disinfectant agent is now well recognized; but, owing to its liquid condition and difficulty of transportation, it has hitherto been but little used for such purposes. Chlorine, which is a gas, is always available by means of the solid commercial chloride of lime; but a similar method of binding bromine in a compound, which would readily yield it up, has heretofore been a desideratum. A manufacturer of Charlottenburg (Prussia), Mr. Frank, has conceived the idea to cause bromine to be absorbed by so-called "kiesel-guhr," that is, the siliceous marl which Ehrenberg has shown to consist of the microscopic shells of infusoria, and which is also used to absorb nitroglycerin, thus forming the well-known dynamite. The inventor has given to the mixture the inappropriate name "solidified, or solid bromine." In this condition, it is easily applied for disinfecting purposes.—*Pharm. Handelsbl.* [It will also be more readily shipped for long voyages; the bromine may be liberated from the kieselguhr without difficulty.]

Analysis of Patented and Proprietary Preparations.—*Réparateur à base de Quinquina préparé par F. Crucq, chimiste, etc. etc., Paris.* This is a hair-tonic or hair-dye, pretending to be made from cinchona bark. Dr. Geissler, of Dresden, has analyzed it and found it to contain acetate of lead and hyposulphite of sodium, without a trace of any constituent of cinchona. It contains, besides, alcohol, glycerin, and some perfumed water.—*Pharm. Centralh.*, No. 4.

Dulaurier's "Chemical" Nomenclature.—A soidisant French chemist, Dulaurier, has taken umbrage at the long terms which modern chemistry supplies us with, and while reading an article by Otto Fischer, in which the term "Tetramethyldiamidotriphenylcarbinol" occurred, he took occasion to complain that "ce diable d'Allemand" should apply such a name to this green coloring matter. His remedy is very simple: He calls the above substance *Zekeidreo*. Mr. Dulaurier does not care a fig for the structural, but merely for the empirical formulæ, which latter are provided for by his mnemotechnic nomenclature. The atomic numbers are expressed by vowels, or nasalized vowels, thus:

a	e	i	o	ô	u	an	in	on	un
1	2	3	4	5	6	7	8	9	0

The elements are expressed by consonants:

oxygen=X	sulphur=S
hydrogen=Dr	sodium=D
carbon=K	potassium=P
chlorine=Cl	fluorine=Fl
nitrogen=Z	gold=R
phosphorus=Ph	lead=Pl, etc.

Hence H_2 is=Dre and O, is=Xa; consequently H_2O (or water)=Xadre. The most electro-negative element is always put in front. CO_2 is pronounced Heka; NH_3 is Zadri. Instead of the "nom barbare," "tetramethyldiamidophenylcarbinol," we therefore obtain the melodious and expressive term Zekeidreo!

The application of algebraic expressions in chemistry likewise meets with objections on the part of Mr. Dulaurier, who is evidently neither a chemist nor a mathematician, for he says: "Lorsque je vois que l'on emploie l'algèbre, qui a été imaginé pour simplifier tous les calculs, à compliquer [pour Mr. Dulaurier, ED. N. R.] toutes les parties de la science et la plupart du temps en s'appuyant sur des bases fausses pour en tirer des conclusions absurdes, cela me révolte."—*Chemiker-Zeitung.*

Some of our readers will remember that the late Prof. Samuel D. Tillman, of the American Institute of New York, a number of years ago, likewise attempted to introduce a similar nomenclature, but without success, as might have been expected.

Sodium Chlorate as a Topical Application.—DR. TRAILL GREEN uses the sodium chlorate in preference to potassium as a local application to ulcerations of the skin or mucous membranes. Its solubility is greater, one part of the anhydrous salt being soluble in .79 parts of water at 30° C. and in .66 parts at 50°, according to Kremers. Dr. Green finds that it dissolves in a little more than its own weight of water at 20° C. (69.8° Fahr.); while, at the same temperature, potassium chlorate requires sixteen times its own weight of water. In the experience of Dr. Green, the sodium chlorate has a more decided remedial effect than the corresponding potassium salt. As a bath for the surface of scarlatina patients, he employs a solution of 4 grams to 500 cubic centimetres of water, with the effect of relieving the itching and burning of the skin, and for a similar purpose in the early stage of rhus poisoning; later, 12 grams to 500 c.cm. of water. 4 to 8 grams, in the same amount of water, serves as a local application in erysipelas; a similar solution of 4 grams is an efficacious remedy sor conjunctivitis and purulent ophthalmia.—*Med. and Surg. Rep.*

Effect of Combining of Calomel and Potassium Iodide.—SCHLAEFKE, in Graefe's *Archiv*, calls attention to the fact that, when calomel is applied to the eye, if iodide of potassium be simultaneously given internally, severe inflammation of the conjunctiva is liable to arise.

* *In Realencyclopædie der gesammten Heilkunde.*

He explains this result by stating that there occurs a formation of the iodate [?] and iodide of mercury, which, in the presence of common salt or iodide of potassium, are soluble and act as caustics.—*Bost. Med. and Surg. Jour.*

Aqua-Puncture for the Relief of Pain.—DUMONTPALLIER, of Paris, asserts that pain located at one point of the body yields to an injection of water or merely a simple puncture, made at a corresponding point on the opposite side. This procedure he has practised in neuralgias, in acute articular rheumatism, and in rheumatic or toxic neuralgia. So soon as irritation has been produced on the sound side, the patients have acknowledged a diminution, and often a complete cessation of the pain on the affected side.—*Boston Med. and Surg. Jour.*

Injections of Cold Water into the rectum are said by Winternitz to rapidly reduce the temperature of the stomach, and suggests that they may be useful in gastric disorders.—*Boston Med. and Surg. Jour.*

Denaturalized Alcohol.—The German parliament passed a law, on July 19th, 1879, which permitted the use of alcohol, free of duty, for certain manufacturing purposes, including the manufacture of vinegar. By a supplemental regulation, passed Dec. 23d, 1879, the law has been further specialized, and the following provisions particularly apply to the business of pharmaceutical or chemical manufacturers.

Duty-free alcohol may be used for all commercial purposes, except for the preparation, 1st, of soaps, 2d, of perfumery, and 3d, of alcoholic liquids which are or may be used as beverages or otherwise intended for internal use.

Rebate of duty, or freedom from duty, will be granted only to such alcohol as has been "denaturalized," that is, which has been made unfit as a beverage. The usual method of denaturalization—which has been copied from that in use in England—is the addition of 10% of wood spirit; but, for certain manufacturing purposes, this addition is objectionable, and may be replaced by either of the following methods: Alcohol for the manufacture of alkaloids is denaturalized by the addition of ½% of oil of turpentine, or 0.025% of animal oil; if intended for the preparation of resin of jalap or scammony, by ½% of oil of turpentine; if intended for making chloroform, iodoform or ether, by 0.025% of animal oil; if for collodion, tannin, and salicylic acid, by 10% of ether; and if intended for the manufacture of vinegar, by 100 to 300% of water and 100% of vinegar.

The act of denaturalization is performed, on the application of the manufacturer or dealer, if possible in his own establishment. The applicant must furnish the materials for denaturalization himself, and bear all expenses. The revenue officers are authorized to have access, at all times, to those portions of the establishment in which the denaturalized alcohol is used, to keep control of the amount of the latter, and to examine it chemically.

The substances used for denaturalization must be strictly in accordance with the provisions of the law, and must comply with the reactions and tests there given. For instance, wood-spirit must have a spec. gr. not exceeding 0.840, must boil between 58° and 62° R. (=162.5°–171.5° F.), and must remain clear or should but very slightly opalesce if mixed with an equal volume of water; further, on mixing 10 cc. of the wood-spirit with 20 cc. of a soda solution of spec. gr. 1.300, at least 1 cc. of the wood-spirit must remain undissolved; and finally, 10 cc. of wood-spirit must completely decolorize a mixture consisting of 1 part of bromine and 80 parts of a 50% acetic acid. The examination of oil of turpentine, animal oil, and ether is restricted to the identification of their peculiar odors, and that of the vinegar used for denaturalization to the proof that it contains at least 6% of glacial acetic acid.—*Pharm. Centralh.*, No. 3.

Fennel Useful for Masking the Odor of Musk and of Iodoform.—DR. F. BIERMANN writes to the *Pharm. Zeit.* (No. 3) that powdered fennel is an excellent means of masking and covering the odor of musk. Oil of fennel is most remarkable for its great power of removing the penetrating odor of iodoform. 5 to 8 drops of the essential oil of fennel are sufficient to disguise 1 gram of iodoform.

Condensed Beer is now manufactured on a very large scale by the Condensed Beer Company, London. The process resembles that of the manufacture of condensed milk. The beer is evaporated in vacuum-pans to ¼–⅛ of its original volume, and then the amount of alcohol originally present in it is again added to it, which at the same time acts as a preserving agent. It is sold in hermetically sealed cans. This enterprise promises to be of great value and importance. It is said that the company has already or is about starting similar works in Columbia, Brazil, Uruguay, Buenos Ayes, Mexico, the Cape Colony, Natal, Transvaal, and Madeira.—*Chem. Zeit.*

Separation of Olein from the More Solid Fats.—A German patent has been granted to the Société Petit Frères in Paris for an apparatus, primarily intended to separate the margarin (or palmitin) which, in stearin-factories, remains dissolved in the fluid olein. It consists of a drum, composed of two hollow cylinders, placed one inside of the other. The annular space between them is supplied with cold water. The olein is allowed to flow in a thin stream upon the external surface of the outer cylinder, upon which the more solid facts congeal, and are constantly removed by a knife-blade fastened on a spring. The solid falls into a tub filled with water, while the liquid portion runs off into a trough.

[An apparatus of this kind might also be used for obtaining oleic acid from the commercial red oil.]

Fuchsine in Hungarian Red Wines.—The sanitary authorities of various districts in Switzerland, having had their attention drawn to the reported presence of fuchsine in many lots of imported Hungarian red wines, have examined the stocks of a number of dealers, as well as consignments recently arrived by rail, and have detected a number of them to be contaminated with fuchsine. Besides, some of the wines were found to have been treated with a peculiar blue coloring matter, probably for the purpose of modifying the red color.—*Schweiz. Wochensch. f. Pharm.*

Hungarian wines being used to a considerable extent in this country, particularly for medicinal purposes, it will be well if purchasers examine the wines they receive. The best process for detecting the impurity has been described in our last number, page 89.

Cinchona Cultivation.—From the last reports of Kew Gardens it appears that the success of the Cinchona plantations in the mountainous districts of Jamaica, West Indies, is complete. The trees grow there at the remarkably low elevation of 2,000 feet over the sea-level. In the parish of Manchester there are thousands of acres which may be utilized for the growth of Cinchona.

The Indian government some time ago sent Mr. H. Cross to New Granada, to bring living plants of those species of Colombia bark which are known as soft and hard Carthagena bark. The plants were safely transported to England, and Mr. Howard, on analysis of specimens of the bark of trees of the same species gathered in the same locality, found the soft bark to be extremely rich in alkaloids (6.24%). Of the hard bark, only one was found valuable, containing 4.75% of alkaloids. Some of the plants gradually died, but those which now remain, and which will ultimately form the nucleus of a new crop for India, namely fifteen of the "soft" and ten of the "hard" Carthagena cinchona, are considered to be permanently saved. The "soft" cinchona in question was collected at the banks of the river Caqueta at the eastern side of the Cordilleras, and is designated by Cross as "Calisaya of Santa Fé."—From *Pharm Zeit.*

BIBLIOGRAPHY.

THE DRUGGIST'S READY REFERENCE. Containing a Price Current of Drugs, Chemicals, Oils, Glassware, Patent Medicines, Druggists' Sundries, and Valuable Tables, Tests, Formulas, also other Desirable Information. Copyrighted and Presented by MORRISON, PLUMMER & Co., Wholesale Druggists and Importers of Druggists' Supplies, 52 and 54 Lake St., Chicago, Ill.: 1880, 8vo, pp. 331.

CONTAINS a large number of advertisements of leading houses and is prepared in an elegant style.

THE CALENDAR OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 1880, London: Published by the Society. 8vo, pp. 456. 1*s*.

THIS is the first publication of the kind by the Society, and includes a list of officers, members, subscribers, the various committees, information relating to courses of lectures, prizes, examination papers, lists of prizemen and scholars, the various laws affecting pharmacists and chemists, tables of weights, measures, etc., making altogether a compendium of valuable information for the members and such others as may be interested in the work of the society.

A PRACTICAL TREATISE ON NERVOUS EXHAUSTION (NEURASTHENIA). Its Symptoms, Nature, Sequences, Treatment. By GEORGE M. BEARD, A.M., M.D. New York: William Wood & Co., 1880, 8vo, pp. 198.

A WORK on this subject has long been desirable, since the class of affections to which it relates are both common and little understood. Dr. Beard was among the first to devote special attention to the systematic study of so-called nervous exhaustion, and papers by him on its various phases have from time to time appeared in medical literature for a number of years past. It is not probable that we have among us any one so competent as he to write comprehensively upon this topic, and we are sure that this first systematic treatise of any extent which has been published here, will meet with general favor.

The work is divided into chapters as follows: I. Introduction; II. Symptoms of Nervous Exhaustion; III. Nature and Diagnosis of Nervous Exhaustion; IV. Prognosis and Sequences of Nervous Exhaustion; V. Treatment and Hygiene of Nervous Exhaustion. Among the remedies enumerated as the principal ones suited to this condition are, Arsenic, Cannabis Indica, Caffein, Coca, Zinc combinations, Duboisia, Cimicifuga, Trailing Arbutus, Eucalyptus, Hydrastis, Bromides, Chloral, Strychnia, Opium, Alcohol, Mineral Acids, Cod-liver Oil, Phosphates, Koumiss, Electricity, Massage, Metalloscopy, Metallotherapeutics, Nitrous Oxide, Nerve Alteratives, Local Treatment of Uterus and Prostatic Urethra, Horseback-riding, Clothing, Travelling, Climatology, etc., upwards of 60 pages being devoted to this portion of the volume.

PHARMACOLOGY AND THERAPEUTICS; OR, MEDICINE PAST AND PRESENT. The Gulstonian Lectures delivered before the Royal College of Physicians in 1877. By T. LAUDER BRUNTON, M.D., F.R.C.P., F.R.S., etc. London: Macmillan & Co., 1880., 8vo, pp. 212, $1.50.

THE author is well known here as the Editor of the London *Practitioner*, in which he has ably succeeded the late Dr. Anstie. This course of interesting lectures will help the reader to comprehend the nature of the investigations which have of late years added so much to our definite knowledge of the properties of remedies, as derived from experiments upon men and animals. The style which was best adapted to a course of lectures has been preserved, and the book will be found to be not only instructive, but also, for a scientific work, entertaining reading. The subject has been considered under the following general heads: Medicine Past and Present; Progress of Medicine in the Past; Rational and Scientific Study of Medicine; History and Methods of Pharmacology; Pharmacological Methods; Pathology; Therapeutics; Respiration; Digestion; Action of Ferments or Enzymes in Forming Tissues.

DESCRIPTIVE CATALOGUE OF FLUID AND SOLID EXTRACTS; also Pills, Resinoids, and Alkaloids, prepared by HENRY THAYER & Co. With Formulas and Receipts. Cambridgeport, Mass., 1879, 8vo, pp. 270.

THIS is a catalogue of nearly all of the medicinal plants in common use, and is especially complete so far as it relates to indigenous remedies. It contains the doses of fluid and solid extracts made by this house, and formulas for the preparation from them of the Galenical mixtures, masses, pills, tinctures, ointments, etc.

As a specimen of handsome book-work, we rarely meet with its equal.

THE MICROSCOPE AND MICROSCOPICAL TECHNOLOGY. A Text-Book for Physicians and Students. By HEINRICH FREY, Professor of Medicine in the University of Zurich. Translated and Edited by GEORGE R. CUTTER, M.D., etc. Illustrated by 389 Engravings on Wood. Second Edition. New York: William Wood & Co., 1880, 8vo, pp. 660.

NO work has yet taken the place of the former American edition of this one, and the additions and changes which it has undergone in the thorough revision now before us, will render it quite improbable that we shall possess, for some years to come, a more reliable authority. Among the valuable features is an appendix, containing detailed price-lists of all the well-known manufacturers of microscopes and microscope apparatus, which will prove of value to all who are interested in practical microscopy.

SORE THROAT. Its Nature, Varieties, and Treatment. Including the Connection between Affections of the Throat and other Diseases. By PROSSER JAMES, M.D., etc. Fourth edition. Illustrated with Hand-colored Plates. Philadelphia: Lindsay & Blakiston, 1880, 8vo, 318.

IT is but a short time since we noticed the publication of the preceding American edition of this work. In the present one the author has introduced new chapters on Syphilitic Sore Throat, Affections of the Naso-Pharynx, Connection of Sore Throat with Affections of the Nose and Ears, Throat Deafness, and Affections of the Œsophagus, rendering it much more complete as a handy guide to the diagnosis and treatment of this class of affections.

PHOTOGRAPHS OF MEDICINAL PLANTS FROM NATURAL LIVING SPECIMENS. By C. L. LOCHMAN, of Bethlehem, Pa.

MR. LOCHMAN, who is already favorably known to the pharmaceutical profession, chiefly by his translation of the German Pharmacopœia, has undertaken a work which will be of the greatest usefulness and benefit to all who are interested in general and pharmaceutical botany, namely, the photographing of American Medicinal Plants from natural living specimens, so as to present the structural details in as true and distinctive a manner as the process will admit of, leaving nothing lacking but the color. The general run of botanical plates, drawn even by the most skilful artist and the most scrupulous botanist, are more or less faulty, particularly in the minute details, in the true proportions of the parts, or in other points: hence there is never an absolute reliance that the illustration is complete and true in every respect. Photography does not admit of such errors. As long as enough light can be reflected from a leaf, a stem, or other part of the plant, to show the details, there will be no possibility of deviation from the truth, and the photograph may even be examined with a lens, when the more minute details, which may not be visible by the unaided eye, will become clearer. The set of plates so far completed—54 in all—have been prepared with great care and judgment. The specimens are judiciously displayed, showing the character of the flower, often also a sectional view of the latter, the upper and lower surface of leaves, sometimes the

fruit, and, where the root or rhizome is officinal, also the latter. The slight shadow which appears on the photographs of many specimens as a partial background of leaves and stem has a peculiar effect: it makes the specimen appear stereoscopic, and one would almost be inclined to stretch out the hand to grasp the specimen, so natural does it appear. The only thing that is wanting is color. But, if color were superimposed, the value of the plates, as correct delineations of nature, might be destroyed.

The plates so far completed are the following: Achillea,* Alnus serrulata, Asclepias cornuti, Anethum graveolens, Atropa belladonna, Cassia marilandica (in flower), do. (in fruit), Asarum canadense, Asclepias tuberosa, Althæa, Aralia nudicaulis, Aralia racemosa, Cephalanthus, Chelone, Chelidonium, Cicuta, Cichorium, Cimicifuga, Colchicum, Collinsonia, Conium, Cornus florida, Crocus, Dicentra cucullaria, Stramonium, Eupatorium perfoliatum and E. purpureum, Gentiana Andrewsii, Gentiana quinquefolia, Geranium, Gillenia, Humulus, Hepatica, Liriodendron, Lobelia, Lobelia syphitica, Lycopus europæus, Lycopus virginicus, Nabalus albus, Podophyllum, Polygonatum biflorum, Phytolacca, Rubia, Sanguinaria, Saponaria, Scutellaria, Smilacina racemosa, Dulcamara, Dracontium, Tanacetum, Tussilago Farfara, Veronica virginica, Viola pedata.

The photographs are imperial size, 4¼x6½ inch. (10.6x 16 5 cm.), are mounted on good stiff cardboard, 8x10 inch. (20.3x25.5 cm.), and distinguished by a printed label, giving the full botanical name with author, the synonyms, English names, proportions of print to natural size. natural order, prominent botanical details, habitat, and medicinal properties.

The price of the mounted set of 54 plates is only $6.75, exclusive of carriage; the set of unmounted prints costs $1.50.

A System of Medicine. Edited by J. Russell Reynolds, M.D., F.R.S., etc. With numerous additions and illustrations by Henry Hartshorne, A.M., M.D., etc. In three volumes. Philadelphia: Henry C. Lea, 8vo, Vol. I., 1879, pp. 1,127. Vol. II., 1880, pp, 935.

The edition of this well-known and standard work here referred to is being published by subscription; the five volumes of the original English edition being condensed, by the use of small but clear and readable type, and the arrangement of two columns to a page, into three volumes which will aggregate about 3,000 pages. Many new illustrations have been inserted, and besides paragraphs in the text and foot-notes, the American editor has added chapters on Chlorosis, Scrofula, Rötheln, Cholera infantum, Pernicious fever, Typho-malarial fever, Hæmophilia, etc.

It is hardly needful to say anything in praise of a work that has among its contributors many of the best English writers on medical subjects. It may be further said of this edition, however, that the price at which it is sold ($15.00) places it within the reach of many physicians who have, until now, felt unable to purchase it. Moreover, the labors of the American editor render it much better adapted than the original to the needs of practitioners in this country.

Desiccated Blood for Rectal Alimentation, and other Literature on the subject of Alimentation per Rectum. 8vo (Pamphlet issued by Parke, Davis & Co., Detroit, Mich.).

Constitution and By-Laws of the St. Louis College of Pharmacy. 12mo, St. Louis, 1878.

Statuts de la Société de Pharmacie de Meurthe et Moselle. 8vo, Nancy, 1875.

Compte Rendu des Travaux de la Societé de Pharmacie de Meurthe et Moselle. 2 vols. 8vo. Nancy, 1877, 1878.

* Where only *one* name is mentioned, we mean the officinal species The originals contain the full name.

NEW BOOKS.

Scudder (Samuel H.). Catalogue of Scientific Serials of all Countries; including the Transactions of Learned Societies in the Natural, Physical, and Mathematical Sciences, 1633–1876. 8vo, Boston. $6.00.—A useful addition to any library.—Ed. N. R.

Mueller (Bar. Ferd. v.). Eucalyptographia. A Descriptive Atlas of the Eucalypts of Australia and the adjoining Islands. Decade 1, with 11 plates, pp. 26. Decade 2, with 11 plates, pp. 20. Roy, 4to, Melbourne, 1879 (to be continued). Each part 5*s*.

Seidler (Paul). Ueber Chrysarobin und die angebliche Chrysophan-Säure im Goa-Pulver. Inaugural Diss., 8vo, pp. 38. Göttingen, 0.80 *m*.

Perutz (H.) Die Industrie der Mineralöle, des Petroleums, Paraffins und Ceresins, nebst d. neuesten Fabrikationsmethoden. 11 illust. and 2 lith. plates. 8vo, Wien, 1880.

Artus (Dr. Willibald). Grundzüge der Chemie in ihrer Anwendung auf das praktische Leben, 24 illust. 8vo, Wien.

Kohlmann (Benno). Die Errichtung pharmaceutischer Untersuchungsbureaux und das Gesetz gegen die Verfälschung der Nahrungsmittel, etc. 8vo, Leipzig, 1880.

Hempel (Dr. Walther). Neue Methoden zur Analyse der Gase. 8vo, Braunschweig, 1880.

Beauregard (H.) et Galippe (V.). Guide de l'Elève et du Préparateur pour les Travaux pratiques de Micrographie. 570 fig., 8vo, Paris, pp. 900. 15 fr.

Griessmayer (Dr. V.). Die Verfälschung der wichtigsten Nahrungs- und Genussmittel vom chemischen Standpunkte in populärer Darstellung. 16mo, Augsburg, pp. 120. $0.80.

Utile cum Dulci. No. 12: Acetate de Fer, oder eine Heirath mit Hindernissen. Ein chemischer Schwank in 1 Act. 16mo, Breslau. $0.40.

Jones (Francis). Questions in Chemistry: A Series of Problems and Exercises in Inorganic and Organic Chemistry. 18mo, London, pp. 200. 3*s*.

Fitch (W. H.) and Smith (W. G.). Illustrations of the British Flora: A Series of Wood Engravings, with Dissections of British Plants. 8vo, London, pp. 320. 12*s*.

Kresken (H. Acosta). Wonders of Flora: Preservation of Flowers in the Natural State and Colors. Also Treatise on Ornamental Grasses and Mosses, and how to color them. 8vo, Dayton, pp. 204.

Mueller (Dr. N. J. C.). Handbuch der Botanik: I. Band: Handbuch der Allgemeinen Botanik. 1ter Theil: Anatomie und Physiologie der Gewächse. Mit 480 Abbildungen. Gr. 8vo, Heidelberg, 1880.

[An exhaustive work. Promises to be the most complete treatise on Botany.—Ed. N. R.]

Statistics of Cochineal Production in the Canary Islands.—The *Cronica de la Industria*, of Madrid, contains some valuable statistics, relating to the exportation of cochineal from the Canary Islands during late years.

There were exported:

1873–74....	lbs. 5,088,679	1876–77....	lbs. 3,827,988
1874–75....	" 6,067,638	1877–78....	" 5,429,753
1875–76....	" 5,375,643	1878–79....	" 5,149,636

Four fifths of the cochineal have gone to England and France. To Spain there were exported only 215,545 pounds in 1873–4, in 1878–9 but 95,876 lbs. Last season's export was made from the following points:

Gran Canaria	lbs. 2,879,221
Teneriffe	" 1,895,838
Lanzarote	" 132,616
Palma	" 241,961
Total	lbs. 5,149,636

—*Amer. Mail and Exp. Jour.*

TRADE NOTES AND NOVELTIES.

Colgate's Office Soap supplies a want in business houses for a good, reliable, and comparatively inexpensive soap, containing sufficient alkali to cleanse badly-soiled hands, and with a perfume which will cover the traces of the hands having been used in manipulating odorous substances. Something similar to it is COLGATE'S Hotel Soap, a recommendation for which is the fact that, at least while it is fresh, and the trade-mark is legible, "absent-minded" guests will not be likely to pack it up in their baggage.

"Reliable" toilet-soap is an attempt to provide a good and low-priced soap for those who do not care for a detergent that has consumed extra care and expensive materials in its manufacture, but which is nevertheless made in good style and of good ingredients. This is also a product of the same establishment as the foregoing, and is put up in imitation of Russia-leather boxes, lettered in gilt.

A VERY ingenious **Syringe,** made by EDWARD HALL of 632 Arch st., Philadelphia, has lately come to hand, and possesses several notable features. It consists of a glass bottle, holding from a half-pint to a pint and provided with a metal cap screwing on to a rubber packing. The bottle is graduated with marks blown in the glass, whereby the amount of its contents used can be accurately determined. An india-rubber ball, mounted on the cap, serves, when compressed, to force air into the bottle and to drive out its contents through a discharge-pipe, which also penetrates the cap and passes nearly to the bottom of the bottle. The discharge-pipe above the cap is continuous with an india-rubber tube ending in the usual forms of nozzle. In use, this syringe gives a steady stream, free from spurts; there is no opportunity for leakage, the contents never comes in contact with the valves; it is easily cleaned, and no additional vessel is required to hold the substance to be injected. We can see no reason why it should not become a very popular form of syringe.

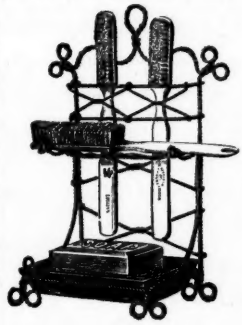
For some months past we have been using **Mead's Adhesive Plaster,** made by SEABURY AND JOHNSON, of this city, and are well pleased with its qualities. It is prepared, like other plasters made by that house, with an india-rubber base and adheres without the aid of heat. To facilitate its use, the face is protected with a sheet of thin muslin, which is to be left in place until the strips have been cut, when it may be pulled off. The only other precaution necessary in its use is the careful drying of the skin to which it is to be applied. Each roll is nicely packed in a pasteboard box and is warranted to remain serviceable in any climate. No plaster that we have yet used possesses such "sticking" qualities, and for dressing cuts, its hold upon the skin enables shorter strips to be used than would be possible with the usual variety of plaster.

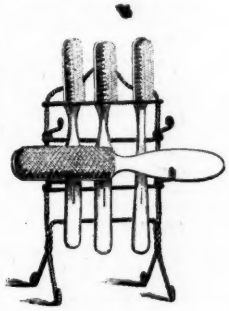
HENRY THAYER & Co., of Cambridge, Mass., whose elixirs are so well known, have sent us samples of their new **Licorice Coated Pills,** which are among the handsomest preparations of this kind that have come to our notice. The pills are round, evenly coated, have a polished surface, and the coating is sufficiently translucent to show, to some extent, the nature of the contents. When held in the mouth, the coating is quickly dissolved; a very few moments sufficing to entirely uncover the mass.

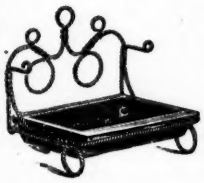
On cutting into the pills, they are found to be homogeneous in structure, dry, and moderately friable, showing that the pills had been dried before the coating was applied. A 3 gr. Comp. Cath. Pill, U. S. P., placed in a test-tube with water of about 90° Fahr. and rolled gently back and forth along the length of the tube, lost its coating inside of a minute, and at the end of three minutes, the outer surface of the mass was quite softened. At the end of ten minutes, the tube, being left standing, the water was so colored as to prevent the pill being seen. Left now to itself for half an hour, the mass was half reduced to a pulp, although the water had by this time become cold.

WILLIAM SNOWDEN, the well-known instrument maker of 7 South Eleventh st., Philadelphia, has sent us a sample of a **Binaural Stethoscope,** made after the principle of the one invented by Dr. Camman, and resembling somewhat the one proposed by Dr. W. Ely, of Rochester, some years ago. The essential features are a hard-wood chest piece, on the end of which a rubber cup is fastened, to adapt it to uneven surfaces. Two long rubber tubes terminating in soft rubber nipples (resembling the erasers made to fit the end of lead-pencils) are connected by a wire spring so formed as to hold the ear pieces in position. By some physicians, the instrument is found to be quite as serviceable as the original pattern invented by Dr. Camman, while its cost ($3.00) is considerably in its favor.

Sherwood's Toilet Articles and Druggists' Sundries of which we give three specimen illustrations, are just beginning to find their way into the market and are







remarkable, not only for their attractive appearance, but also for their utility. They are made of wire which, after being shaped, is heavily tinned, thus not only giving them a handsome finish, but firmly soldering their parts together so as to render them quite indestructible. There are are many varieties made of articles useful about the toilet stand, as well as others especially adapted for exhibiting goods. Considering their handsome appearance, substantial workmanship, and inexpensive character, they cannot fail to become desirable additions to the list of "sundries."

From MESSRS. LEHN & FINK, of 160 William st., in this city, we have a sample of the **Glass Wool** now becoming so generally used in the filtration of acids and caustic alkaline solutions. It sells for about $1.50 per ounce. Aside from its utility, it is interesting as a sample of what can be done in the management of this refractory substance.

MR. LE DUC, Commissioner of Agriculture, has favored us with samples of **Sugar made from Sorghum,** one (from Illinois) having been crystallized in vacuum pans, and the other (from Minnesota) made in open pans. Both samples are of the grade of light coffee sugars, the crystals of the latter being most distinct and the sample dryer.

Judging from the amount reported to be made now at the West, it will not be long until, with sorghum sugar, and glucose from corn, the North will rival the sugar-producing States of the Gulf, and Southern farmers will be obliged to introduce other staple crops congenial to their climate.

CORRESPONDENCE.

Comments on the Report on the Revision of the U. S. Pharmacopœia.*

From a number of notes, which were furnished to the Editor of the Report by friends who assisted him in reading the proofs, the following are selected as forming criticisms or corrections of the formulæ there published. These notes were either purposely reserved until the report was completed, because their incorporation into the text was not absolutely necessary at the time; or, they were received too late to be made use of. Most of the notes here printed are those furnished by Dr. F. Hoffmann (H.). The others are added by the Editor of the Report. There are a number of other points, besides those below quoted, which require argument or amendment; but there will be ample occasion hereafter to correct them.

Acidum Oxalicum.—Better left out.—H.

Alcohol Deodoratum.—Better left out. Alcohol, as defined in the pharmacopœia, is pure enough for perfumery, or spiritus odoratus, etc.—H.

* *Aluminii Hydras.*—Suggested as an addition.—H.

Aqua Acidi Carbonici.—This should be left out. If this is retained, formulæ for the much more used artificial mineral waters might be received also.—H.

Aqua Ammoniæ.—Under characteristics, read: When accurately saturated with nitric acid and diluted with 5 volumes of distilled water, the liquid should remain clear, *or suffer but a slight opalescence*, on the addition of nitrate of silver, etc. It should remain clear, or *nearly so*, on the addition of oxalate of ammonium.—H.

Aqua Amygdalæ Amaræ.—In place of precipitated phosphate of calcium, here and elsewhere throughout the book, washed powdered *talc* would probably do just as well, being handier and cheaper.—H.

Aqua Distillata.—For very nice purposes, also for delicate reagents, a twice-distilled water (*aqua bis-destillata*) is recommended by Hager and others.

Bismuthi Subcarbonas and *Subnitras.*—"On warming, if any arsenic was present, arseniuretted hydrogen is eliminated, which may be detected with paper impregnated with nitrate of silver."—Excellent as this test is, is it not too sharp? Absolute absence of arsenic in commercial bismuth is hardly to be attained and the presence of traces may not be objectionable. Regarding lead in bismuth, compare *Pharm. Zeit.*, 1879, 294.—H.

Carbasus Antiseptica.—Carbasus, although occurring as masc., is generally *fem.*; hence it will be preferable to say antiseptic*a*.

Ceratum Cantharidis.—Cerate of cantharides is most efficacious and permanent if the cantharides are thoroughly moistened with benzin, so as to form a thin paste, and then allowed to stand in an open porcelain capsule over night, before being added to the melted fat and wax.—H.

Ceratum Extracti Cantharidis.—Since the average pharmacist is not properly prepared for making such distillations, would not the cheaper "benzinum" do just as well for exhaustion? The benzin may subsequently be removed by spontaneous evaporation at a gentle temperature.—H.

Collodium cum Cantharide.—Pure benzinum seems to be preferable to ether.—H.

Confectio Sennæ.—Would not the simple, time-honored formula of the Germ. Pharm. be preferable? It has more and more come into popular use here, just like the Pulvis Glycyrrhizæ Co.—H.

Elixir Simplex.—Dr. Hoffmann offers, for comparative test, his formula for simple elixir:

Alcohol (strong. alc.)	8	pints.
Simple syrup	8	"
Tincture of orange peel	½	"
Oil of cinnamon	5	drops.
Oil of neroli	5	"
Oil of crisped mint (*Mentha crispa*)	3	"
Oil of bitter almonds	10	"
Spir. limonis, U. S. Ph	1	fl. oz.
Water	8	pints or q.s.

Mix the alcohol, syrup, and tincture, then rub the oils and the spirit with a few ounces of powdered talc, rinse the same with luke-warm water upon a moistened filter, and pass 8 pints of water through the filter. Add the filtrate to the first mixture and tinge the whole, if desired, with caramel.

Ferri Carbonas Saccharata.—This preparation, now officinal in the Germ. Pharm., deserves recognition.—H.

Gargarismata.—The introduction of formulæ for gargles would probably be followed by formulæ for lotions, injections, etc., which would unnecessarily encumber the pharmacopœia.—H.

Infusum Caryophylli.—Should be omitted.—H.

Infusum Cinchonæ.—Would it not be advisable to give, in addition to this process of percolation, a formula for making the infusion and the decoction rapidly *ex tempore* in a glass flask or porcelain capsule?—H.

Infusum Sennæ Compositum.—Would not Potassii et Sodii Tartras be preferable to Magnesii Sulphas in this preparation?—H.

Iodoformum.—Is also soluble in carbon disulphide.—H.

Linimentum Saponis.—An addition of 5 to 10% of aqua ammoniæ is an improvement in every respect; the alcohol may be proportionately reduced.—H.

Liquor Ammonii Acetatis.—The spec. grav. should be given. Would favor the methods of the European pharmacopœias, using acetic acid and water of ammonia.—H.

Liquor Chloroformi Compositus.—Why not purified honey in place of molasses?—H.

Mr. *A. E. Angier*, of Columbus, O., writes:

"Liquor Chloroformi Co., as given in the report, would make (I should think, without having tried it) an inelegant mixture, and one that would precipitate and require shaking. I have been preparing for some time the following, which gives excellent satisfaction to the physicians using it. If the ingredients are carefully selected, it makes a permanent, brilliant, green preparation, pleasant and efficient:

Hydrochlorate (muriate) of morphia	grs.	11.
Extract of Cannabis indica	"	12.
Chloroform	fl. ℥	4.
Diluted hydrocyanic acid	fl. ℥	½.
Tincture of capsicum	fl. ℥	1½.
Tincture of peppermint, to make	fl. ℥	4.

Dissolve the extract (Squibb's) in the chloroform, using about 5 fl. ℥ of the latter to allow for evaporation, and mix with the other ingredients.—This is fully as efficient as Chlorodyne."

Liquor Ferri Subsulphatis.—Would it not better to call this "Liquor Ferri Sulphatis," and the

Liquor Ferri Tersulphatis: "Liquor Ferri Sulphatis Acidus?—H.

Mel Sodii Boratis.—Could well be dispensed with, as the Glycerite of Borax is preferable.—H.

Mistura Amygdalæ, Asafœtidæ, and *Copaibæ* might be put under the heading *Emulsiones.*—H.

Mistura Copaibæ.—

Mr. *A. E. Angier*, of Columbus, O., remarks to this:

"In Mistura Copaibæ, syrup of lemon is used for the excipient. Could not Simple Elixir or some other flavoring compound be used in this and other formulæ where syr. lemon is now advised? The latter syrup is so unstable that it is generally prepared extemporaneously by the druggist from extract or spirits of lemon and syrup. The physicians here largely use Brown Mixture for the diluent of Copaiva Mixture."

Mistura Ferri Composita.—Would prefer Glycerin to Sugar.—H.

* Published by the Committee on the Revision of the U. S. Ph., of the American Pharm. Assoc. See last number.

* *Oleum Sinapis.*—Should be distinguished by an asterisk.

Pilulæ.—Whenever admissible, the use of *glycerin* in place of water or solutions of sugar appears to be of advantage, since the objections to pills and their getting old depends largely upon their hardening and consequent slow or questionable solubility during their passage through the alimentary canal.—H.

Pilulæ Scillæ Compositæ.—Aqueous Extract of Ergot is suggested as a substitute for pounded ginger.—H.

Potassii Chloras.—Tests for sulphates and chlorides might be given, as also for lead. See *Pharm. Centralh.*, 1875, No. 33, and *Amer. J. Pharm.*, 1875, 304.—H.

Pulvis Rhei Compositus.—Would suggest to incorporate *Sugar*, 1 *part*, and about 15 drops of Oil of Fennel into each 100 *parts* of the powder.—H.

Pyroxylon.—Would advise the omission of the formula.—H.

Saturationes.—The term "Saturationes" is so generally applied in pharmacy and medicine to carbonated alkaline solutions of vegetable acids, that this proposed extension of the word might mislead. It is, moreover, not quite correct as here proposed.—H.

Syrupus Aurantii Corticis.—Second formula is preferable to first.

Syrupus Calcii Lactophosphatis.—The formula given in the Report furnishes a syrup which is too concentrated. Besides, it is difficult to drain sufficient water out of the precipitated phosphate of calcium to enable the operator to add the 6 parts of orange-flower water and the 6 parts of lactic acid, and to still have only 35 parts of liquid after filtering. The strength of the syrup, as commonly used, is about 2 grains of phosphate of calcium in a fluid drachm; or about 4 drachms in one pint. Calculating on this basis, 5 parts of precipitated phosphate of calcium would have to be contained in about 200 *parts* of the finished syrup.

	Exact weight.	Approxim.
Calcium phosphate, 4 3	240 grs.	1
Final product, 128 fl. 3	ab. 9600 "	40

Hence our formula would undergo considerable alteration and become:

Precipitated phosphate of calcium, *five parts*	5
Lactic acid, *six parts*	6
Orange-flower water, *six parts*	6
Sugar, *one hundred and ten parts*	110
Hydrochloric acid, a sufficient quantity	q.s.
Water of ammonia, a sufficient quantity	q.s.
Water, a sufficient quantity	q.s.

To the precip. phosphate of calcium, contained in a suitable vessel, add water, *fifty parts*, and afterwards *a sufficient quantity* of hydrochloric acid to dissolve it. Strain the solution, add to the strained liquid an equal volume of water, and then add gradually, under constant stirring, sufficient water of ammonia, diluted with its own volume of water, until it is present in slight excess. Transfer the precipitate with the liquid to a strainer, allow the liquid to drain off, then return the precipitate to the vessel, and pour upon it water, *fifty parts*. Again drain the precipitate on the strainer, and repeat the operation once more. Finally allow it to drain as much as possible, then transfer the moist precipitate to a suitable tared vessel, add to it the orange-flower water and lactic acid, and enough water to make the whole weigh *ninety parts*. Stir well during several hours; then filter and wash the filter with enough water to restore the weight of the solution.

Lastly add the sugar, dissolve it by agitation without heat and strain. The product should weigh *two hundred parts*.

Syrupus Ferri Iodidi.—At end, read: Lastly, again shake the bottle, and transfer its contents to small vials, *each containing a straight piece of iron wire of the length of the vial*, etc.—H.

Syrupus Phosphatum Compositus.—Page 142, line 5 from below, read *parts* for *grams*.

Unguentum Benzoini.—Both lard and benzoated lard, for pharmaceutical purposes, resist rancidity much better if mixed with one-tenth to one-fifth per cent of carbolic acid.—H.

NOTES, QUERIES AND ANSWERS.

Under this heading we shall, to the best of our ability, endeavor to answer such questions addressed to us, as come within the scope of this journal, provided they are accompanied by the name and address of the writer. Answers to queries received after the 5th of the month will lie over until the next issue. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for the formula of an unusual, patented, or proprietary compound, always accompany the query with any information you may already possess regarding the locality in which it is used, its use and reputed effects, in order to enable us to make inquiry without waste of time and labor. When it can conveniently be done, send also a specimen of the label used on packages of the compound.

No. 696.—**Chinese Drying Oil** (X. Y.).

This is the name of a drying oil patented by H. C. Busse, of Hannover. Linseed oil is filtered through charcoal, transferred to flat iron pans, and for every 50 kilos of oil there are added 10 kilos of subacetate of lead, 10 k. of red lead, and ½ k. of borate of manganese. The mixture is covered with a glass plate, exposed to light, heated to 122° C. (=252° F.), and a current of air containing 10% of steam at a temperature of 122° C. is passed through the mixture. It is then filled in flat tin boxes, which are placed into a tin cylinder, in the upper part of which there is a wide-mouth flask containing one kilo of chloroform for each 25 kilos of oil. A current of air at 100° C. is now passed through the cylinder—issuing by a valve from the bottom. This converts the oil, in eight to ten hours, into a thick tough mass. Meanwhile a sufficient quantity of American oil of turpentine is heated for a short time, in a closed vessel, to 300° C. (?), and is afterwards mixed with 10% of absolute alcohol. In this liquid an equal weight of the oily mass previously prepared is dissolved, and the solution allowed to settle.

A very small quantity of this preparation is said to be sufficient to cause linseed oil and oil colors in general to dry very rapidly.

No. 697.—**Plaster-Casts** (A. W.).

Our correspondent desires us to describe a method by which good plaster-casts of parts of the human body, particularly of the head and face, may be prepared. Although this is an art which is usually practised by sculptors, and artists specially prepared for executing such work, yet it not unfrequently happens that the pharmacist is consulted, or his services requested for this purpose. Therefore we do not deem the inquiry foreign to the purposes of our journal. The best way, according to *Stübchen-Kirchner* is the following: First anoint the hairs, eyebrows, and beard—if the latter is to be preserved—very thoroughly with pomatum or lard, until the hairs agglutinate, when they are to be arranged exactly as it is desired they should appear on the cast. All other parts of the skin are then oiled, and the head isolated from the rest of the body by suitably arranged cloths. A firm and well-waxed thread is now placed upon the head in such a manner that one half of it passes down the centre of the face, following the outline of the skin as closely as possible—and the other half passes over the back of the head, likewise closely following its contours. In the same manner another thread is passed over the head sideways, so that the whole surface is divided into four quarters. Good gypsum (dentists' plaster) is now mixed with warm water,

the mass is allowed to become somewhat stiff, and is then applied as quickly as possible by means of a broad brush, beginning at the back of the head and ending at the mouth and nose. In order to facilitate breathing, paper-tubes may be inserted into the nostrils, but, with proper care and skill, this is not necessary. Upon the first layer a second, of much greater thickness, is applied with the hands, and just as soon as the plaster begins to set, the ends of the strings are grasped with both hands, and pulled outwards and upwards, so that the cast is divided into four parts. After a short time it will have hardened sufficiently to permit its being taken to pieces. The pieces are then dried and varnished. When using them for making a cast, they are placed in position and luted together with plaster. Direct application of a thick layer of fresh plaster to the skin of the dead often produces unnatural shrivelling of the skin, or twisting of superficial organs. To avoid this, it is best to apply first a very thin layer of plaster, then a number of strips of very fine cotton or linen fabric, and, after this first thin layer is dry, to apply a thick layer of plaster on top of the latter. The preparation of casts after the moulds are made is so simple that it needs no special description.

No. 698.—**Piscidia Erythrina** (W. M. H., M.D.).

Piscidia Erythrina L., Jamaica Dogwood, at one time called by Linné *Erythrina piscipula* "the fish-catching coral-tree," belongs to the natural family Leguminosæ. It is a native of the West Indies, chiefly growing in arid districts on the mountains of the Antilles. It is most frequent on Jamaica. When full grown, it attains a height of 20 to 25 feet, has a bright-colored, smooth bark and very irregular spreading branches. The leaves are twice or thrice pinnatifided, somewhat coriaceous, covered with a fine down when young, afterwards becoming almost glabrous and deciduous. Leaflets about two inches long, twelve to sixteen lines broad, and pointed. Panicles are bushy, many-flowered, and make their appearance before or together with the leaves. Calyx brownish-red, covered with grayish hairs; campanulate, five-sepalous; corolla papilionaceous and whitish, with roundish emarginate standard, and with obliquely-ovate alæ, having blood-red veins. Keel curved, blunt and bifid, with a blood red point. Legume linear, quadri-alate, about three inches long, constricted between the seeds; alæ broader than legume. Seeds oblong-oval, compressed. Tree flowers in March and April.

The bark of this tree, particularly that of the root, is used in the West Indies for catching fish. When thrown into ponds or quiet waters, the fish become stupefied and are easily caught.* Small fish are killed by it. Fish caught in this manner are eaten without hesitation and are not considered unwholesome. An infusion of the bark of the root has also been used for cleaning foul ulcers. A tincture prepared from the root-bark is known to possess strongly diuretic properties. It is also a powerful narcotic and diaphoretic and has enjoyed the reputation of being a specific in toothache.†

The usual method of employing the drug for catching fish is the following: At the time of the full moon in April the leaves, twigs, and root-bark are collected, macerated with the residue from the distillation of rum or with lime-water, then transferred into baskets, and the latter dragged up and down the water, until the active principle has been extracted, which causes the fish to be stupefied and to rise to the surface.

We have seen the name of *manaca* lately applied to this plant in several journals; but we cannot now ascertain on whose authority. In Brazil, the name *manaca* is applied to *Brunfelsia Hopiana* Benth. (=*Franciscea uniflora* Pohl.) according to B. Seemann.

In South America the bark of *Piscidia carthagensis* L. is used by the natives likewise for stupefying fish.

*This remarkable narcotization of fishes is ascribed to many other plants, particularly to Cocculus Indicus, Tephrosia toxicaria (specially cultivated for this purpose in Guiana), etc.

†Compare *Buchner's Rep.*, I., 215. *Pharm. Central Bl.*, 1835, 413.

Recent medical authorities report that the action of *Piscidia Erythrina*, when taken internally, appears to be a direct sedative to the nerve-centres; that it causes sleep without producing the cerebral hyperæmia which often follows opium and its active principles. The sleep is tranquil and refreshing; it is said to soothe bronchial cough and to moderate the paroxysms of asthma and nervous coughs. In view of the fact that opium is often not well borne, when an anodyne and hypnotic is required, it seems that the drug in question deserves further study. The usual dose is five minims of the fluid extract.

It would be desirable to make an analysis of the plant with a view to discover its active principle.

No. 699.—**Retinol** (B. & W.).

This is the name applied lately to a new product, namely, the *purified* oil obtained by the dry distillation of rosin. When rosin or colophony is subjected to dry distillation, a large part of it passes over in a modified form, partly as light oil (terebene, colophene), and partly as heavy rosin oil. Owing to the presence of colophene, etc., in the heavier rosin oil, the latter, as heretofore found in commerce, had a disagreeable odor, and a blue fluorescence. To remove this, the crude oil is (according to W. Kelbe's patent) heated to 120° C. in an iron boiler, and mixed with so much solution of soda, spec. gr. 1.215, as will dissolve in the oil without turbidity. The mixture is is then gently boiled, and the water carefully replaced from time to time. After ½ hour 100 litres of water are added for every 100 kilos of oil, under brisk stirring, and when the temperature has fallen to 50°–60° C., the whole is once more stirred, and then left at rest for the oil and lye to separate. The above temperature must be preserved, because the lye again yields coloring matters to the oil at a temperature over 65° C., while below 50° C. the separation of oil and lye takes place too slowly. The oil is then separated, washed, and finally, in order to remove the last traces of blue-fluorescing impurities, exposed to the air in flat iron trays for several days, at a temperature of 60°–80° C. The water and lighter oils evaporate, and at the same time the blue-fluorescing substance disappears.

The purified oil is called *retinol*, is bright yellow, almost odorless and does not resinify. A mixture of 30 parts of retinol with 70 parts of rape-oil yields a good lubricant for machinery.

No. 700.—**Churchill's Iodine Compounds** (Dr. B.).

There are two such compounds in use. They are:

1. *Churchill's Tincture of Iodine.*

Iodine	2½ ℥
Iodide of potassium	½ ℥
Alcohol, 75%.	16 fl. ℥

2. *Churchill's Iodine Caustic.*

Iodine	1 ℥
Iodide of potassium	2 ℥
Water	½ fl. ℥

No. 701.—**Ammonio-Citrate of Bismuth in Elixirs** (C. H. D.).

Citrate of bismuth itself being an insoluble salt, we generally use the double citrate of ammonium and bismuth, if we wish to get an aqueous solution. This may be readily made by dissolving the citrate of bismuth in dilute water of ammonia, or by dissolving the scaled salt of the market. This double salt is only soluble if the solution is neutral or alkaline; the slightest trace of an acid will cause precipitation. The trouble you have with your elixir of Calisaya, iron (pyrophosphate), and bismuth is a very common one, and is difficult to avoid. If your elixir of Calisaya is made from the alkaloids, and the body of the elixir contains enough alcohol, the latter will be able to keep a trace of separated alkaloids in solution. Hence, after dissolving the sulphates of the alkaloids, in the manner directed elsewhere in this number (see p. 124), you may dissolve in the solution the pyrophosphate, and afterwards dissolve the bismuth salt, by trituration in a mortar, and the careful addition of ammonia, until the reaction is neutral. Then filter, and, if the solution will bear it, add a *very small* quantity—a few drops—of water

of ammonia. If the latter is allowed to evaporate, by frequently opening the bottle, the old trouble will probably make its appearance again.

No. 702.—**Syrup of the Hypophosphites of Potassium and Sodium** (J. B. R.).

The following formula makes a good syrup, containing the salts in the usual proportions prescribed:

Hypophosphite of calcium	1½ ʒss
Hypophosphite of sodium	½ ʒss
Citric acid	½ ʒss
Water	20 fl. ʒss
Orange-flower water	1 fl. ʒss
Sugar	25 ʒ

Dissolve the hypophosphites by gradually triturating them with cold water in a mortar; should there remain (as is usually the case), a trifling quantity of the salts undissolved, let the solution settle, pour off nearly the whole of it, and add to the residue the citric acid, which will cause complete solution. Then filter, add the sugar, and dissolve it by agitation without heat. Strain, and finally add the orange-flower water.

No. 703.—**Potassium Oxalate** (W. M. Kelly).

Our correspondent evidently is not conversant with the modern chemical nomenclature, but this is precisely the reason why we take pleasure in answering his inquiry, because we may be the means of helping him over a difficulty. "Potassium oxalate" is the modern way of expressing what has formerly been called "oxalate of potash," which is formed by neutralizing a solution of oxalic acid with "caustic potash," or with carbonate or bicarbonate of potash (potassa). There are several oxalates of potash (or oxalates of potassium), namely:

1. *Neutral oxalate of potassium*, which is prepared by exactly neutralizing the acid with potash or its carbonate.

2. *Acid oxalate of potassium.* There are two well-defined acid oxalates, namely, one in which there is just twice as much acid as in the neutral salt; this is called, in the old nomenclature, binoxalate of potash, and is commonly termed "salt of sorrel," because it is this salt to which the acid taste of sorrel is due. The other acid salt contains four times as much oxalic acid as the neutral salt—always supposing that the quantity of potassium remains the same—and this is called quadroxalate of potash.

The neutral oxalate is soluble in three parts of cold water, and is, of course, also soluble in sea-water. But the latter, like many other natural waters, contains a small amount of calcium salts (sulphate, etc., of lime), as well as magnesium salts. Whenever these are present, and the solution is neutral or alkaline, the lime and magnesia will form insoluble compounds with the oxalic acid of the oxalate, and be precipitated. Sea-water contains about 1½ parts of sulphate of lime and 3.7 parts of magnesium salts in 1,000 parts; hence there will be a perceptible but not very abundant precipitate. After all the lime and magnesia has been separated, the water will take up oxalate of potassium to saturation, and will remain clear.

No. 704. — **Photographic Prints from Nature** (F. P. G. Barcelona).

Of course, it is possible to at once photograph any object directly upon the block of wood or other substance upon which the illustration is to be produced. For instance, a photograph may be made upon a block of wood, and the engraver may work right on the photograph. Yet, if we understand your question correctly, you wish to know of a process which would not require the skill of a draughtsman or engraver to complete the details. This is accomplished by means of photo-lithography, photo-zincography, or other similar processes, in which either the remnants of a sensitized film are used for printing, or in which the picture is etched into metal. In general and briefly, the process may be thus described. The object is first photographed in the usual manner—and, although some employ direct photography on the block, the best effects are obtained by starting from a regular glass-negative. A print is made from the negative upon a sensitive film, say of gelatin and bichromate of potassium, and by exposure the gelatin compound will become insoluble wherever the light strikes it. By washing with water the unacted portions are washed away, and there now remains a gelatin-film corresponding to the shadows of the original object. This film may be situated on thick plate-glass, and after inking, may at once be printed from. Or it may be inked and the picture transferred on metal, which is afterwards covered with an acid to depress all those parts of the surface which are not covered with ink. This is zincography. Or, the film after proper inking may be itself transferred upon stone and the picture left thereon; this is photo-lithography. It has not been found practicable to at once expose a sensitive gelatin-chrome plate *in the camera itself*, because it requires a much stronger light to produce the necessary chemical effect within the camera than outside of it. If the gelatin plate could be exposed directly to the object in the camera itself, the process would, of course, be considerably shortened.

Other, and more detailed information you will no doubt obtain from the modern text-books on photography and from photographic journals.

No. 705.—**Alterative Mixture** ("Iodide").

Glenn's Compound Syrup of Stillingia is made, according to King, as follows:

Stillingia	4 lbs.
Yellow dock-root	2 "
Pipsissewa	2 "
Blue-flag root	1½ "
Coriander	1 "
Turkey corn root (Corydalis)	1 "
Prickly ash berries	1 "
Bloodroot	½ "
Sugar	34 "

Macerate and percolate the ground vegetable drugs with alcohol of 76% and reserve the first seven pints of tincture; then percolate with water until the percolate is free from alcohol; evaporate or distil off the latter. Exhaust the drugs with water, and evaporate or boil this solution down, so that when mixed with the second solution it will make 40 pints. Add the sugar, dissolve it, and finally add the reserved tincture. It should measure 7 gallons.

No. 706.—**Salicylic Acid and Bisulphate of Potassium** (W. M. K.).

Our correspondent wishes to know, by what method equal parts of salicylic acid and potassium bisulphate can be manipulated so as to form a clear solution which will be permanent.

It is impossible to combine the *acid* sulphate of potassium in a mixture with salicylic acid, or one of the salicylates without separation of the salicylic acid. Salicylic acid is but little soluble in water (1:300), but much more so in alcohol. The reverse in the case with bisulphate of potassium. You should draw the attention of the prescriber to this fact, so that he may alter the recipe. There are, of course, possible ways of producing a clear solution by roundabout methods, that is, by the addition of other chemicals; but this is inadmissible, because it completely changes the character of the constituents.

No. 707.—**Oleoresin of Cubebs** (I. F.).

One of our friends sends us the following communication:

A friend of mine bought *one ounce* of oleoresin of cubebs at an east side drug store. The preparation was colorless and about the consistence of glycerin. Taste and odor of cubebs strongly marked. Subsequently he sent to a west side druggist for the same preparation, which in this case was of a dirty yellowish-brown color, turbid, depositing a granular yellow sediment. Taste and odor not so well marked. Now I would like to know which of the two preparations was the true officinal one; how ought the preparation to appear; and, if one prepar-

ation was wrong, was the seller guilty of fraud or how was he culpable?

If the prescription was plainly written and called for oleoresin of cubebs, we should say, from the above description, that neither of them was the correct article. The substance first furnished, which was colorless, was evidently the essential oil of cubebs, which may have been delivered in consequence of the name of the article not having been properly or plainly written. If so, it was a mistake. If the words were plain, it was an unjustifiable and improper substitution. The description of the second sample does not exactly tally with the appearance of good oleoresin of cubebs, which is from a blackish-brown (if made with alcoholic ether) to a greenish or even grass-green color (if made with pure ether, which carries along the chlorophyll). Oleoresin of cubebs, after standing some time, gets turbid, and deposits a sediment consisting of wax and cubebin, which separation, however, does not impair its activity. Yet we do not remember having seen oleoresin of cubebs of a dirty "yellowish-brown" color. It seems to us, that the dispenser in the last-mentioned instance actually delivered what the prescription called for, so far as the quality of the stock on hand permitted. But perhaps the description given by our correspondent's friend is not sufficiently exact, and on further inquiry he may find that the article possessed the properties of the true oleoresin.

No. 708.—**Camphorated Dover's Powder** (L. R. Jr.).

Our correspondent desires to know the composition of *Brinsman's* (Camphorated) *Dover's Powder*. Can any of our readers give the formula?—Besides the above, there are several such compounds mentioned in medical and pharmaceutical literature, but they are probably but seldom prescribed *by name*. The principal ones are the following:

1. *Selle's Camphorated Dover's Powder.*
   - Ipecac, powd. ..... gr. ½.
   - Opium, powd. ..... gr. 1.
   - Camphor, powd. ..... gr. 2.
   - Sugar, powd. ..... gr. 40.
2. *Richter's Camphorated Dover's Powder.*
   - Ipecac, powd ..... gr. 2.
   - Opium, powd ..... gr. 1.
   - Camphor, powd. ..... gr. 1.
   - Sugar, powd. ..... gr. 12.
3. *Graefe's Camphorated Dover's Powder.*
   - Opium, powd. ..... gr. 1.
   - Camphor, powd. ..... gr. 2.
   - Nitrate of potassium. ..... gr. 10.
   - Sugar. ..... gr. 20.
4. *Beach's Camphorated Dover's Powder.*
   - Opium, powd. ..... gr. 1.
   - Camphor, powd. ..... gr. 4.
   - Ipecac, powd. ..... gr. 2.
   - Bitartrate of potassium, powd ..... gr. 16.

No. 709.—**Foam on Soda Water** (Ch. F. C.).

Gum Arabic has been and is still used by a great many dealers in soda water for producing foam. But the well-known firm of John Mathews, manufacturer of soda water apparatus, etc., of New York, have for some time back introduced a substitute for gum arabic into the market, which they call "gum foam," and is said to owe its foaming power to quillaja. This should be added to the syrup, and gives to all carbonated beverages a beautiful and lasting white foam. One pound of it is sufficient for 500 half-pint bottles of soda water.

No. 710.—**Carbolate of Ammonium** ("A reader").

Under the name "Carbolate of Ammonium" or "Ammonium-phenol" or "Ammonium Phenylate" is understood a solution of carbolic acid, 1 part, in water of ammonia, 9 parts.

No. 711.—**Patent and Proprietary Preparations.**

The inquiries of G. W. S., M.D.; M. Ei.; A. W. B.; and Ana, cannot be answered by us, as the composition of these preparations is not known to us.

PRESCRIPTIONS AND FORMULÆ.

We shall be obliged if our readers, who make use of these formulæ, will inform us of their experience with them, and note any errors or modifications worthy of attention.

Elixirs.—The formulæ for elixirs, which were adopted by the National College of Pharmacy at Washington and the Medical Society of the District of Columbia, and which were subsequently published, are here reproduced by special request. In the back numbers of this journal, a considerable number of other formulæ will be found, and others will be published hereafter.

Elixir Aurantii.

Spirit of orange (1:15)	4 fl. oz.
Stronger alcohol	28 "
Simple syrup	48 "
Water	48 "
Caramel	4 fl. dr.

Mix the spirit of orange (prepared with 1 measure of fresh oil of sweet orange peel, and 15 measures of strong alcohol), alcohol, simple syrup, and water. Clarify the mixture with paper pulp, and add the caramel to the filtrate.

Elixir Aurantii was selected by the committee on non-officinal preparations as the most satisfactory "simple elixir." It constitutes the body of nearly all the elixirs formulated by the committee. The following directions are added by the committee. Elixirs, as a rule, should exhibit a perfectly neutral reaction on litmus paper, and it is suggested that deodorized alcohol be used in their preparation. They are, in the opinion of the committee, best clarified by agitation with paper pulp, reduced to a minute state of division by trituration with a small portion of the elixir, and permitted to remain in contact with the whole bulk of the liquid about 24 hours previous to filtration. *Sixty* (60) grains of filtering paper is sufficient to render *one* (1) pint of elixir aurantii perfectly clear and limpid. Clarified elixir of orange should be kept on hand in sufficient quantity to meet any emergency.

Elixir Ammonii Bromidi.—*Elixir of Bromide of Ammonium.*

[One fluid drachm contains 5 grains of the salt.]

Bromide of ammonium	640 grs.
Elixir of orange	16 fl. oz.

Dissolve and filter.

Elixir Ammonii Valerianatis.—*Elixir of Valerianate of Ammonium.*

[One fluid drachm contains 2 grains of the salt.]

Valerianate of ammonium	260 grs.
Water	1 fl. oz.
Elixir of orange	15 "
Water of ammonia	q. s.

Mix the salt with the water, and add gradually water of ammonia, until a solution neutral to test paper is obtained. Mix this solution with the elixir of orange and filter.

Elixir Calisayæ.—*Calisaya Elixir.*

Sulphate of quinia	72 grains.
Sulphate of cinchonia	24 "
Sulphate of quinidia	20 "
Sulphate of cinchonidia	12 "
Elixir of orange	8 pints.

Triturate the mixed sulphates with one pint of the elixir; pour the mixture into a glass flask, and heat in water-bath until solution is effected; while still hot, add the remainder of the elixir; when cold, filter.

The committee who proposed this formula considered it to be more rational, convenient, and reliable than any

in which the bark is used. It affords a product which truly represents the medicinal properties of the bark, being based upon the average proportion of the various alkaloids found in the best samples of Calisaya bark, as estimated from the analyses of trustworthy authorities.

[The title *Elixir Calisayæ* is, strictly speaking, unpharmaceutical, although defensible on the ground of long usage. The title *Elixir Quiniæ Compositum*, or something similar, would be more nearly correct.]

Elixir Calisayæ Ferratum.—*Elixir of Calisaya and Iron.*

[One fluid drachm contains 2 grains of the ammonio-citrate of iron.]

Citrate of iron and ammonium	256 grs.
Calisaya elixir	16 fl. oz.

Dissolve and filter.

Elixir Calisayæ, Ferri, et Bismuthi.—*Elixir of Calisaya, Iron, and Bismuth.*

[One fluid drachm contains 2 grains of the ammonio-citrate of iron and 1 grain of the ammonio-citrate of bismuth.]

Citrate of bismuth and ammonium	128 grs.
Elixir of calisaya and iron	16 fl. oz.
Water of ammonia	q. s.

Dissolve the citrate of bismuth and ammonium in the elixir; add water of ammonia carefully until the reaction is perfectly neutral, then filter.

Elixir Chinoidini Compositum.—*Compound Elixir of Chinoidine.*

[One fluid drachm contains 2 grains of chinoidine.]

Chinoidine	256 grs.
Acetic acid	4 fl. dr.
Water	2 fl. oz.
Fluid extract of dandelion	6½ fl. dr.
Spirit of nutmeg	2 min.
Stronger alcohol	6 fl. dr.
Brandy	4 fl. oz.
Elixir of orange	8 fl. oz.

Dissolve the chinoidine in the acetic acid and water. Add the fluid extract, spirit of nutmegs, alcohol, and brandy previously mixed. Filter and mix the filtrate with the elixir of orange.

Elixir Corydalis Compositum.—*Compound Elixir of Corydalis (Turkey Corn).*

Elixir of orange	10 fl. oz.
Stronger alcohol	2 fl. oz.
Fluid extract of corydalis	1 fl. oz.
Fluid extract of stillingia	1 fl. oz.
Fluid extract of prickly ash bark	4 fl. oz.
Fluid extract of blue flag	1½ fl. oz.
Iodide of potassium	360 grains.

Mix the liquids in the above order; dissolve in the mixture the iodide of potassium, set aside for twenty-four hours, and then filter.

Elixir Ferri Pyrophosphatis.—*Elixir of Pyrophosphate of Iron.*

[One fluid drachm contains 2 grains of pyrophosphate of iron.]

Pyrophosphate of iron	256 grs.
Elixir of orange	16 fl. oz.

Dissolve and filter.

Elixir Ferri et Quiniæ Phosphatum.—*Elixir of the Phosphates of Iron and Quinia.*

[One fluid drachm contains 1 grain of pyrophosphate of iron, and ½ grain of the alkaloid quinia.]

Quinia (alkaloid)	64 grs.
Pyrophosphate of iron	128 "
Stronger alcohol	2 fl. oz.
Water	3 fl. oz.
Syrup	3 fl. oz.
Elixir of orange	8 fl. oz.

Dissolve the quinia in the alcohol, and the pyrophosphate of iron in the water. Mix the two solutions, add the syrup and the elixir. Filter if necessary.

Elixir Ferri, Quiniæ, et Strychniæ Phosphatum.—*Elixir of the Phosphates of Iron, Quinia, and Strychnia.*

[One fluid drachm contains 1 grain of pyrophosphate of iron, ½ grain of quinia, and $\frac{1}{64}$ grains of strychnia.]

Strychnia	2 grs.
Quinia	64 "
Pyrophosphate of iron	128 "
Stronger alcohol	2 fl. oz.
Water	3 fl. oz.
Syrup	3 fl. oz.
Elixir of orange	8 fl. oz.

Dissolve the strychnia, and afterwards the quinia, in the alcohol. Dissolve the pyrophosphate of iron in the water. Mix the two solutions and add the syrup and the elixir. Filter, if necessary.

Elixir Gentianæ.—*Elixir of Gentian.*

Fluid extract of gentian	1 fl. oz.
Elixir of orange	15 fl. oz.

Mix and filter.

Elixir Gentianæ Ferratum.—*Elixir of Gentian and Iron.*

[One fluid drachm contains 1 gr. of pyrophosphate of iron.]

Take of

Pyrophosphate of iron	1.28 grs.
Elixir of gentian	16 fl. oz.

Dissolve and filter.

Elixir Guaranæ.—*Elixir of Guarana.*

[Ten grains to each fluid drachm.]

Fluid extract of guarana	2 fl. oz.
Stronger alcohol	2 "
Elixir of orange	8 "

Mix and filter.

Elixir Lithii Citratis.—*Elixir of Citrate of Lithium.*

[One fluid drachm contains 2 grains of the salt.]

Citrate of lithium	256 grs.
Elixir of orange	16 fl. oz.

Dissolve.

Elixir Pepsini et Bismuthi.—*Elixir of Pepsin and Bismuth.*

[One fluid drachm contains 2 grains each of saccharated pepsin and ammonio-citrate of bismuth.]

Saccharated pepsin	256 grs.
Citrate of bismuth and ammonium	256 grs.
Stronger alcohol	2 fl. oz.
Rose water	2 "
Sugar	5 oz.
Caramel	30 min.
Water	q. s.
Water of ammonia	q. s.

Dissolve the citrate of bismuth and ammonium in eight fluid ounces of water, filter and dissolve the pepsin, and then the sugar in the filtrate without heat. Mix the alcohol and rose water, and add the mixture to the solution. Neutralize the elixir carefully with water of ammonia, add the caramel, and strain through canton flannel, without pressure, adding enough water through the strainer to make the finished elixir measure one pint.

Elixir Pepsini, Bismuthi et Strychniæ.—*Elixir of Pepsin, Bismuth, and Strychnia.*

[One fluid drachm contains 2 grains each of saccharated pepsin and ammonio-citrate of bismuth, and $\frac{1}{64}$ of a grain of sulphate of strychnia.]

Sulphate of strychnia	2 grains
Elixir of pepsin and bismuth	16 fl. oz.

Dissolve.

Elixir Picis Liquidæ Compositum.—*Compound Elixir of Tar.*

Wine of tar	16 fl. oz.
Syrup of wild cherry	4 "
Syrup of tolu	4 "
Refined wood naphtha	1 "
Sulphate of morphia	4 grs.

Mix. Dose, two teaspoonfuls.

(*To be Continued.*)

American Mustang Liniment, for sprains, rheumatism, chilblains, etc. A mixture of petroleum, ammonia, and spirit.—*Vorwerk.*

Nettle Beer.—

Green nettles	1 peck.
Coltsfoot,	
Dandelion, of each	1 handful.
Brown sugar	2 pounds.
Ginger	1 ounce.
Cream of tartar	1 "
Yeast	1 "
Boiling water	3 gallons.

Infuse the herbs in the boiling water, and when cold strain the liquor. In it dissolve the cream of tartar and the sugar, and add the yeast and the bruised ginger. Let the whole work for about twelve hours, skim the liquor carefully, and bottle it in champagne bottles. Close tightly with good corks softened in boiling water, and tie the corks down. After a few days, the beer is ready for use, and makes a very pleasant effervescing beverage.—*Mineral Water Trade Review.*

Artificial Selters Water Without a Generator.—

Fused chloride of calcium	4 grains.
Chloride of magnesium	12 "
Chloride of sodium	15 "
Citrate of iron	½ grain.
Tartaric acid	2 drachms.
Bicarbonate of soda	2½ "
Water, sufficient.	

Dissolve all the salts, excepting the tartaric acid and the bicarbonate, in about one pint of water, and introduce the solution into a champagne bottle. Then, having completed the requisite quantity of liquid so as to leave an empty space of about two fluid ounces, add the tartaric acid, and, immediately after, the bicarbonate of soda. Cork the bottle tightly, secure the cork with stout cord, and set the bottle aside for about six hours before it is opened. It is then ready for use.—*Mineral Water Trade Review.*

Marking Inks.—Mr. R. Robert gives the following formula for a new marking ink, which he says cannot be removed by any chemical means and does not require heating, being, therefore, far preferable to silver nitrate, which is often faded and removed by the chloride of lime so frequently used nowadays in washing.

Phosphate of manganese	1 oz.
Hydrochloric acid	2 oz.
Anthracene	½ oz.
Potassium chromate	¼ oz.
Gum Arabic	q. s.
Water	¼ oz.

Dissolve the phosphate of manganese in the acid ; then add the anthracene " in ¼ oz. of water with ¼ oz. of potassic chromate ; add gum and shake. Write with any pen."—*Pharm. Journ.*

E. Jacobsen, some years ago, recommended the following process for producing the real indelible aniline-black, for marking purposes :

1. Dissolve 8.52 parts of crystallized chloride of copper, 10.65 parts of chlorate of sodium, and 5.35 parts of chloride of ammonium in 60 parts of distilled water.

2. Dissolve 30 parts of hydrochlorate of aniline in 30 parts of distilled water, and add to it 20 parts of a clear solution of gum arabic in water (1 of gum, 2 of water) and 10 parts of glycerin. Mix equal portions of the two solutions immediately before using ; then apply the mixture with a pen or stencil. At first the writing appears pale-green ; but after being exposed for some time to the air, and after steaming, it turns black.

Marking pencils, which are sold both here and in Europe, consist mainly of nitrate of silver, with or without the addition of nitrate of potassium, or of other substances. Some years ago it was recommended to take 8 parts of kaolin, 2 p. of finely powdered dioxide of manganese, and 3 p. of nitrate of silver ; to mix and knead them intimately with 5 p. of distilled water, then to dry the mass and to inclose it in wood, in the shape of lead-pencils.

Red marking pencils are likewise sold in the market. They chiefly contain alizarine, like Robert's indelible ink above described (or does the latter contain anthrachinon?)

A recent English patent of James Hickisson, of London, covers the following process : A strip of cloth is saturated with a solution of a vanadium salt and another with an oxidizing agent—salts of nickel and of copper being specifically mentioned. The fabric to be marked is laid between the strips, and the design is made by pressing a blunt point or a stamp on top. Or else, pencils are made with the aid of glue, dextrin, wax, kaolin, and nitrate of manganese, one end (one-half) of which is impregnated with a solution of the vanadium salt, the other with a solution of the nickel or copper salt. The design is made upon the fabric first with the vanadium end, and is afterwards gone over with the other end.—From *Pharm. Zeit.*

Syrupus Zinci Bromidi.—L. Lyons proposes the following formula :

Bromide of potassium	106 parts.
Sulphate of zinc, cryst.	255 "

Dissolve the salts separately in the least possible quantity of hot water and mix the solutions while hot. Allow the mixture to stand until cold ; then add twice its volume of alcohol ; stir well and filter. Evaporate the filtrate until the alcohol is driven off, then add enough distilled water to make the solution weigh 450 parts. Transfer it to a bottle and add sugar, 550 parts. Dissolve by agitation without heat.

This syrup contains 10% of dry bromide of zinc. It is transparent and nearly colorless ; is inodorous and has an astringent and somewhat metallic taste. It can be given in combination with most tinctures and syrups. An agreeable preparation is made by combining it with orange-flower water.—*Am. Jour. Pharm.*

Hectographic Inks.—1. Dissolve aniline-violet to saturation in diluted acetic acid. The best variety of violet is that known in trade as methyl-violet IV. B. The odor of acetic acid is best covered with a little nitrobenzol. 2. Dissolve rosaniline in a cold saturated solution of oxalic acid. This produces a very potent ink which will yield a hundred copies. It must be allowed to dry spontaneously.

Gold-Lacquer for Brass.—This is applied upon the metallic surface, previously scoured and perfectly clean, and at once heated with an alcohol flame, so as to melt the ingredients of the lacquer. A good recipe for such lacquer is the following :

Shellac 200, sandarac 80, mastic 80, gamboge 20, dragon's blood 20, anatto 20, Venice turpentine 60, red saunders 30, alcohol 1000 parts. Digest and filter.

Another formula : Shellac 10, mastic 1, sandarac 1, powdered aloes 2, powdered turmeric 5, powdered saffron ½, dragon's blood 1, Venice turpentine ½, alcohol 100 parts. Digest and filter. The articles to be lacquered are freed from dirt and deprived of grease, if necessary, by means of ether, then dried and heated to 30–35° C. (=86 to 95° F.), quickly varnished over with a fine brush, and once more exposed to a somewhat higher temperature. The lacquer must not be applied too thick.

Another : Sandarac 12, mastic 6, copaiva 2, Venice turpentine 3, oil of turpentine 4, absolute alcohol 36 parts. Mix this varnish with an equal weight of a filtered solution of shellac 5, dragon's blood 5, alcohol 50 parts.

Another : Shellac 2, sandarac 4, elemi 4, alcohol 40 parts. Dissolve and filter. Mix the filtrate with an alcoholic tincture of gamboge and dragon's blood (or an alcoholic solution of fuchsine, picric acid, coralline, etc.), until the desired shade of color is obtained.—*Pharm. Zeit.*

ITEMS.

Friedrich Mohr.

THIS eminent scholar, who died at Bonn, on Sept. 28th, 1879, and whose name is a household word wherever pharmacy and chemistry are cultivated, was born on Nov. 4th, 1806, at Coblenz, his father being an apothecary. During his early youth he was frequently suffering from illness, having a feeble constitution, and was several times compelled to interrupt his studies. When he finally completed the latter, he determined to take up the profession of a pharmacist, and, for this purpose, entered the establishment of his father as apprentice. After some years, however, his desire for knowledge induced him to give up his position and to attend the University of Heidelberg, where he soon became a favorite pupil of Gmelin. Being compelled, in consequence of the breaking out of the cholera, to leave Heidelberg in 1831, he went to Bonn, where he concluded his studies. After having passed his final examination, he returned to his native city, and became the assistant, and in 1840, the successor of his father in business. Previous to this, he had already published a paper on "the Preservation of Force," in which the principle of the unity of natural forces and the law of equilibrium of force is for the first time exactly and sharply defined. Not long after his entering upon the heirloom of his father, he undertook the completion of an important work, begun by Geiger, viz., the *Pharmacopœa Universalis*, which is even today useful for reference. He devoted particular attention to the improvement of pharmaceutical apparatus, and embodied the results of his investigations, together with his practical knowledge, in the well-known *Lehrbuch der Pharmaceutischen Technik*, which was afterwards translated by Redwood, and also edited by Procter.

Dr. Mohr

He also, about 1845, completed a commentary on the Prussian Pharmacopœia. Some ten years subsequently, Mohr entered on the domain of quantitative chemical analysis, and soon enriched the latter by exact and convenient volumetric methods, which, though previously already employed by others, were first brought to a state of perfection and rendered simple and practical by Mohr. His text-book on Volumetric Analysis, of which the 5th edition appeared in 1877, is an exhaustive exposition of this branch of analysis. In 1864, Mohr established himself as "Privat-Docent" of pharmacy, chemistry, and geology at the University of Bonn, and was appointed, in 1867, as Professor (extraordinary) of Pharmaceutical Chemistry. Besides publishing various works more especially relating to geology, he wrote a valuable commentary on the German Pharmacopœia, as well as a Chemical Toxicology (Braunschweig 1874). The accompanying portrait is copied from the *Archiv der Pharmacie*, Jan., 1880.

College of Pharmacy of the City of New York.—During the fifty-first annual session just completed, the number of students attending the lectures and practical instruction was as follows:

Matriculants, total, 278; junior class, 161; senior class, 79; laboratory, 60; summer course in botany and summer course in pharmacy, 28.

The College having abolished the matriculation fee, which has heretofore been exacted from every person, even from those who only desired to attend the summer courses, there can be no doubt but that the classes in Practical Botany and in Practical Pharmacy during the coming summer will be unusually large. We would particularly advise young pharmacists, whether students of the College or not, as well as all others who desire to become familiar with the attractive science of botany, to attend these lectures, which will be delivered by Prof. Alphonso Wood, who will also make botanical excursions with the class.

The examinations just terminated may be pronounced to be very satisfactory, so far as the standard of the classes is concerned. Yet the number of graduates this year is considerably smaller than that of last year, although there were nearly as many candidates. This is explained by greater strictness and more careful scrutiny of the qualifications of the candidates. Of 77 candidates, 44 passed a successful examination, and on Tuesday, March 16th, the degree of Graduate in Pharmacy was conferred upon them at Chickering Hall.

The following is the list of graduates:

Joseph Feil (of Cleveland, O.) (*first prize:* gold medal, awarded by Alumni Association); Julius A. Biskey (of New York) (*second prize:* silver medal); Frank L. Morris (of Newark, N. J.) (*third prize:* bronze medal).

Roll of Honor: George Kraft, Jr., Newburgh, N. Y.; J. C. Comstock, Windsor, N. Y.; Alb. A. Merritt, Pawling, N. J.; Herman Breiting, Germany; Frank Nadler, Peru, Ill.; John Albert, Jr., N. Y.; Otto Klinkenberg, Jonesville, Ind.; Henry M. Kolasky, Augusta, Ga.; A. Th. Koertge, N. Y.; W. P. Blair, Columbus, Miss.

Emilio Bergara, Trinidad, Cuba. J. Dahlbender, Mainz, Germany; Eug. W. Denton, N. Y.; W. S. Disbrow, Newark, N. J.; Chas. H. Duffy, England; W. Frank Fiero, N. Y.; H. F. Frank, Rahway, N. J.; Fr. Aug. Grenzebach, Peekskill, N. Y.; Jos. A. Herb, N. Y.; Ferd. Julius, N. Y.; A. A. Kirschner, N. Y.; Alv. Geo. Koehler, Brooklyn, N. Y.; Salvador J. Lahey, Ireland; Albert H. Lins, Mount Vernon, N. Y.; B. H. Livingston, Brooklyn, N. Y.; Charles Meyer, N. Y.; Samuel Nanheim, London, England; J. J. R. Paulsen, N. Y.; J. A. Proben, Germany; Phil. Scheu, New York; H. C. Schmidt, Hoboken, N. J.; Ch. J. Schneider, Germany; F. T. Schultze, N. Y.; Oscar W. Stiebling, N. Y.; F. G. E. Strahlmann, Germany; W. Tack, N. Y.; H. C. Thomm, Oswego, N. Y.; G. A. Van Deinse, Holland; John A. Wittet, N. Y.; Max Wustrow, N. Y.; H. P. Zeuschner, N. Y.

The address to the Graduating class was delivered by the Rev. Edward L. Clark, and the valedictory by Mr. Frank L. Morris, of the class. Prof. Bedford announced that, through the liberality of a person unknown to the officers of the college, a microscope had been awarded to the student who should show the greatest degree of proficiency in Botany. It had been decided that Mr. Joseph Feil should receive it. The class, in pursuance of the the custom of leaving behind them a memorial, presented to the College, through Mr. Frank L. Morris, "Pfeiffer's Nomenclator Botanicus," in two volumes. Prof. Chandler accepting the gift in behalf of the College. Following the exercises, the faculty and friends of the College dined together at Sieghortner's, and addresses were made, in response to toasts, by Dr. Menninger, Prof. Chandler, Mr. D. C. Robbins, Dr. Castle, Mr. Rice, Dr. Shrady, Mr. C. A. Robbins, Mr. De Forrest, Prof. Froebel, Prof. Bedford, Dr. Hoffman, Mr. Lehlbach, Mr. Seabury, Mr. Cassebeer, and others. In the course of the speeches Prof. Bedford in response to the toast "Pharmacopœial Revision: What has been accomplished?" referred to the services of Mr. Charles Rice in this work, and, as a trustee of the College, presented him with a gold watch and chain, with the following inscription in the case of the former, "College of Pharmacy—Presented to Charles Rice, Ph.D., by his Colleagues and Friends, in recognition of his Valuable and Unselfish Labors in Pharmacopœial Literature, and the Interests of the College.—New York, March 16th, 1880."

Sixth Decennial Pharmacopœia Convention.—We have received from Dr. James E. Morgan a list of delegates to the Pharmacopœia Convention revised and corrected to February 26th, and embracing the following delegations, not mentioned in the list published on page 95 of our last number:

Medical Department of the University of Pennsylvania: Prof. Theo. G. Wormley and Prof. Horatio C. Wood.

Massachusetts Medical Society: Dr. Robert Amory, of Brookline; Prof. Robert T. Edes, of Roxbury, and Dr. Edward S. Wood, of Cambridge.

Dartmouth Medical College, Hanover, N. H.: Prof. H. M. Field.

Connecticut Medical Society: Prof. C. A. Lindsley, of New Haven;* A. Woodward, of Franklin, and C. W. Chamberlain of Hartford.

Rush Medical College, Chicago: Dr. W. S. Harris, Dr. J. S. Knox, and Dr. J. H. Etheridge.

Philadelphia County Medical Society: Dr. Henry H. Smith, Dr. Richard J. Dunglison, and Dr. J. Howard Taylor.

State University of Iowa, Medical Department: Dr. P. J. Farnsworth.

Iowa State Medical Society: Dr. John North, Dr. P. J. Farnsworth.†

We have private advice of the election of the following delegates:

Albany Medical College: Prof. John M. Bigelow and Prof. Willis G. Tucker.

College of Medicine of Syracuse University, Syracuse, N. Y.: Prof. George R. Metcalfe.

Pittsburgh College of Pharmacy.—At the first commencement of this school which occurred on the 11th of March, the following gentlemen were granted the degree of Graduate in Pharmacy: George Fry, Charles L. Kuhn, Adolph Henry Kroeling, James Macbeth Little, Samuel McElroy, Jr., James Clancy McElroy, James Sansom McBride, A. C. Robertson, Oliver C. Sarver, David Franklin Sawhill, and John Wurzell—11.

St. Louis College of Pharmacy.—The fifth annual meeting of the Alumni Association of the St. Louis College of Pharmacy was held at the college rooms, Feb. 17th. After the officers of the past year and the various committees had read their reports, the following officers were elected for the ensuing year: *President*, J. W. Tomfohrde; *Vice-Presidents*, F. F. Reichenbach and O. E. Trentler; *Recording Secretary*, G. H. M. Goehring; *Corresponding Secretary*, L. Riesmeyer; *Treasurer*, Chas. Gietner; *Register*, Ed. M. Till; *Executive Board*, Adolph Pfeiffer, John G. Goehring, Peter Hoffmann, and Edmund Knoebel.

* Also delegate from Yale College.
† Also delegate from State University of Iowa.

Petroleum in Germany.—It is reported that oil has been "struck" in Germany, in the neighborhood of the City of Hanover. The oil is found in the suburbs of Linden and Linmer, as far as the Hildesheimer Hills to the south and the villages of Oilper Klein Scheppenstett to the east. The whole area comprises about 40 square miles, the centres being at Oberg and Oilsburgh, and the districts due north and south of these two principal places.—*The Chemist and Druggist.*

The British Pharmacopœia.—*The Chemist and Druggist* states, in answer to a correspondent, that it is impossible to say when the new edition of the British Pharmacopœia is likely to be published. The original intention seems to have been to issue decennial revisions, but as an addendum appeared in 1874, and no steps have been taken to produce its successor, it will probably be many months, perhaps years, before a new edition is published.

Pharmaceutische Centralhalle für Deutschland. This valuable periodical, which has been edited and published for the past 20 years by Dr. Hermann Hager, enters with the present year on a new series, being published in an enlarged form, and greatly improved in appearance. Dr. Hager has taken an associate editor in the person of Dr. Ewald Geissler, of Dresden.

Remedy for Carbolism.—Dr. Sonneberg has made the important observation, that intoxication from carbolic acid, in consequence of repeated external applications of 5% carbolic acid solution, may be speedily removed by sulphate of sodium. Adults are to take 5 to 8 gm. (75 grs. to 2 ʒ), children 2 to 5 gm. (½ ʒ to 75 grs.) in 200 gm. (about 7 oz.) of water. The urine has a dark green color, somewhat approaching brown, but soon resumes its normal color, when the carbolic applications may be again applied without hesitation.—*Apoth. Zeit.*

PHARMACEUTICAL CALENDAR.—April.

N. B.—The officers of Societies, Colleges of Pharmacy, Pharm. Associations, etc., will oblige us by forwarding schedules of their meetings, lists of officers, and any changes that may be desirable.

Date.	Society Meetings.
1st, Thurs.	Louisville Coll. Ph.—Trust Meet.
	Massach. Coll. Ph.—Trust. Meet.
	New York Coll. Ph.—Trust. Meet.
5th, Mon.	National Coll. Ph.—Annual Meet.
6th, Tues.,	Philad. Coll. Ph.—Trust. Meet.
	Chicago Coll. Ph.—Annual Meet.
	Maryland Coll. Ph.—Trust. Meet.
8th, Thur.	Newark Pharm. Assoc.—Monthly Meet.
	N. Y. Germ. Apoth. Soc.—Monthly Meet.
	Louisville Coll. Ph.—Directors' Meet. and Graduating Exercises.
	Maryland Coll. Ph.—Meet.
12th, Mon.	Rhode Island Ph. Assoc.—Quart. Meet., Providence, R. I.
13th, Tues.	St. Louis Coll. Ph.—Pharm. Meet.
	Georgia Pharm. Assoc.—Meets at Macon.
	National Coll. Ph.—Trust. Meet.
	Massach. Coll. Ph.—Pharm. Meet.
	Kings Co. Pharm. Assoc. (Brooklyn).—Monthly Meet.
14th, Wed.	Cincin. Coll. Ph.—Business Meet.
15th, Thur.	New Jersey Board of Pharm.—Meets at Newark.
20th, Tues.	St. Louis Coll. Ph.—Trust and Alumni M.
	Phila. Coll. Ph.—Pharm. Meet.
26th, Mon.	St. Louis Coll. Ph.—Annual Meet.